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1911-12

# Twelfth Biennial Report

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## Department of Agriculture

*of the*

## State of Florida

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Division of Agriculture and Immigration

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FOR THE YEARS  
1911 AND 1912

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W. A. McRAE  
*Commissioner of Agriculture*  
Tallahassee, Florida

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T. J. APPLEYARD, STATE PRINTER,  
TALLAHASSEE, FLA.



# COUNTY MAP OF STATE OF FLORIDA



LETTER OF TRANSMITTAL.

DEPARTMENT OF AGRICULTURE, STATE OF FLORIDA,  
COMMISSIONER'S OFFICE.

To His Excellency,  
Park Trammell,  
Governor of the State of Florida:

Sir:

As is provided by law, I herewith submit the Biennial Report of the Department of Agriculture for the years 1911 and 1912. The dates upon which the agricultural, horticultural and industrial statistics are based cover the period from July 1, 1911, to June 30, 1912. All other divisions in the report extend to December 31, 1912.

Respectfully submitted,

W. A. McRAE,  
Commissioner of Agriculture.

## PREFACE

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Before the adoption of the Constitution of 1885, the Department of Agriculture was known as the "Department of Lands and Immigration." The Legislature of 1889 established the Department of Agriculture, and in that Act, May 17th, the name of this department of the State Government was changed from the "Department of Land and Immigration to the Department of Agriculture. This is the twelfth Biennial Report of the Department of Agriculture and the first to be made by the present incumbent.

NOTE.—This report covers a part of the administration of two Commissioners of Agriculture, Commissioner B. E. McLin, having died in office January 31st, 1912.

There are many people in the State yet who do not recognize the importance of this Department in other matters pertaining to their interests. The name of the Department from the beginning has been more or less of a misnomer.

To submit a report that will give the best results, we find it necessary to present each branch or division of the Department separately, treating each subject or division separate and distinct from the other. This is the first time in the history of the Department of Agriculture when each division will not only be treated separately, but the report of each division will be printed under separate cover.

In order that the public may be advised of the magnitude and importance of the Department of Agriculture, we give below an outline of the duties of the Commissioner of Agriculture without giving a treatise on each subject.

1. The Division of Agriculture.



2. The Division of Immigration.
3. The Prison Division.
4. The Pure Food & Drugs, Stock Feed & Fertilizer Division.
5. The Land Division.
6. • The Field Note Division.

In addition to the above the Commissioner of Agriculture is a member of the following Boards.

1. The Board of Commissioners of State Institutions.
2. The Board of Pardons.
3. The Trustees of the Internal Improvement Fund.
4. The Board of Drainage Commissioners.

## STATEMENT OF EXPENDITURE OF APPROPRIATION.

As is provided by Chapter 5870, Laws of Florida, Acts of the Legislature; 1909, I submit the following detailed report of the expenditures of funds appropriated for the different divisions of the Department of Agriculture for 1911 and 1912.

### POSTAGE AGRICULTURAL DEPARTMENT.

1911.

Jan.	2—By appropriation for first six months of 1911.....\$.....	\$ 350.00
Jan.	1—By balance left over from 1910 .....	8.94
Jan.	3—To Postal bill for De- cember, 1910 .....	45.39
Feb.	1—To Postal bill for January 1911 .....	54.51
Mch.	1—To Postal bill for February	75.21
Mch.	8—To Southern Express Co. (Feb. bill) .....	33.85
Apr.	1—To Postal bill for March..	100.00
May	1—To Postal bill for April...	41.69
		<hr/>
		\$ 350.65
	To balance .....	8.29
		<hr/>
		\$ 358.94    \$ 358.94

## 1911.

July 1—By appropriation for last six months, 1911 .....	\$ .....	\$ 450.00
July 1—By balance brought down..		8.29
July 1—To Postal bill for June...	76.32	
Aug. 1—To Postal bill for July....	60.98	
Sept. 1—To Postal bill for August..	64.58	
Oct. 2—To Postal bill for Sept....	62.44	
Oct. 2—To Postage on July Quar- terly Bulletin .....	20.12	
Nov. 1—To Postage on October Bulletin .....	19.88	
Dec. 1—To Postage for October...	69.40	
	<hr/>	
	\$ 373.72	
To balance .....	84.57	
	<hr/>	
	\$ 458.29	\$ 458.29

## 1912.

Jan. 1—By appropriation for year 1912 .....	\$ .....	\$ 900.00
Jan. By balance brought down....		84.57
Jan. 3—To Postal bill for Decem- ber, 1911 .....	69.18	
Feb. 6—To Postal bill for January, 1912 .....	95.49	
Feb. 21—To Post Office bill for 5,000 No. 5 2c envelopes .....	106.20	
Mch. 2—To Postal bill for February	103.52	
Mch. 2—To Postage on Bulletin...	23.45	
Mch. 6—To Postal bill 5,000 No. 5 envelopes .....	106.20	
Apr. 2—To Postal bill for March.	100.09	
May 8—To Postal bill for April...	97	
June 3—To Postal bill for May....	68.21	
June 3—To Postage April Bulletin	33.47	
July 1—To Postal bill for June...	66.77	

1912.

Sept. 3—To	Postal bill, postage \$65.08, postage on July Quarterly Bulletin (Aug. bill) \$23.12 .....	88.20	
Oct. 1—To	Postal bill for Septem- ber .....	60.87	
			\$ 987.97—\$ 984.57
	By deficiency to balance		3.40
			<hr/> \$ 987.97

## EXPRESS AND TELEGRAMS, AGRICULTURAL DEPARTMENT.

1911.

Jan. 2—By	appropriation for first		
Aug. To	Postal bill for July .....	65.34	
	six months, 1911 .....	\$ .....	\$ 150.00
	To deficiency brought down from last six months, 1910 .....	57.61	
Jan. To	W. U. Telegraph Co., Dec. bill .....	9.03	
Jan. 11—To	Southern Express Co., Dec. bill .....	29.17	
Feb. To	W. U. Telegraph Co., Jan. bil .....	12.61	
Feb. 9—To	Southern Express Co., Jan. bill .....	30.87	
Mch. 3—To	W. U. Telegraph Co., Feb. bill .....	9.85	
			\$ 149.14
	To balance .....	86	
			<hr/> \$ 150.00 \$ 150.00

1911.

July 1—By appropriation for last six months, 1911 .....	\$ 200.00
July 1—By balance brought forward	86
July 8—To Southern Express Co., June bill .....	17.71
July 8—To W. U. Telegraph Co., May bill .....	13.80
July 8—To W. U. Telegraph Co., June bill .....	11.13
Aug. 2—To W. U. Telegraph Co., July bill .....	15.27
Aug. 3—To Southern Express Co., July bill .....	22.31
Sept. 7—To Southern Express Co., Aug. bill .....	14.00
Sept. 7—To W. U. Telegraph Co., Aug. bill .....	27.97
Oct. 3—To W. U. Telegraph Co., Sept. bill .....	18.90
Oct. 4—To Southern Express Co., Sept. bill .....	15.71
Nov. 4—To W. U. Telegraph Co., Oct. bill .....	24.20
Nov. 4—To Southern Express Co., Oct. bill .....	29.40
Dec. 4—To W. U. Telegraph Co., Nov. bill .....	16.42
Dec. 5—To Southern Express Co., Nov. bill .....	18.69
	<hr/>
	\$ 245.51—\$ 200.86
By deficiency to balance	44.65
	<hr/>
	\$ 245.51

1912.

Jan.	1—By appropriation for year 1912 .....	\$ 400.00
	To deficiency brought down	44.65
Jan.	5—To W. U. Telegraph Co., Dec. bill .....	11.36
Jan.	8—To Southern Express Co., Dec. bill .....	31.30
Feb.	6—To W. U. Telegraph Co., Jan. bill .....	23.09
Feb.	6—To Southern Express Co., Jan. bill .....	46.03
Feb.	5—To W. U. Telegraph Co., Feb. bill .....	28.26
Feb.	7—To Southern Express Co., Feb. bill .....	40.85
Apr.	6—To W. U. Telegraph Co., March bill .....	11.81
Apr.	6—To Southern Express Co., March bill .....	41.43
May	8—To Southern Express Co., April bill .....	25.86
May	9—To W. U. Telegraph Co., April bill .....	22.53
June	4—To Southern Express Co., May bill .....	31.71
June	27—To W. U. Telegraph Co., May bill .....	9.65
July	2—To W. U. Telegraph Co., June bill .....	20.37
Dec.	2—To W. U. Telegraph Co., Nov. bill .....	11.00
		<hr/>
		\$ 399.90
To balance .....		10
		<hr/>
		\$ 400.00    \$ 400.00

## PRINTING STAMPS FOR FERTILIZER AND STOCK FEED

1911.

Jan. 2—By appropriation for first six months, 1911 .....	\$ .....	\$ 600.00
To deficiency brought for- ward .....	172.50	
Jan. 4—To American Bank Note Co., 900,000 Inspection Stamps .....	315.00	
Mch. 9—To American Bank Note Co., 1,000,000 Inspection Stamps .....	350.00	
Mch. 18—To American Bank Note Co., 300,000 Inspection Stamps .....	105.00	
May —By Special Deficiency Ap- propriation by Legislature of 1911 .....		455.00
May —To American Bank Note Co., 200,000 Inspection Stamps .....	75.00	
May —To American Bank Note Co., 100,000 Fertilizer Stamps .....	35.00	
	<hr/>	
	\$1,047.50	
To balance .....	7.50	
	<hr/>	
	\$1,055.00	\$1,055.00

1911.

July 1—By appropriation for last six months, 1911 .....	\$ .....	\$ 900.00
July 1—By balance brought down..		7.50

1911.

July 8—To American Bank Note Co., 500,000 Inspection Stamps .....	210.00	
July 12—To American Bank Note Co., for repair, die and lay down new plate for 100-lb. Pink Inspection Stamps..	75.00	
Aug. 30—To American Bank Note Co., 200,000 Fertilizer Stamps .....	70.00	
Aug. 30—To American Bank Note Co., 100,000 Inspection Stamps .....	35.00	
Nov. 1—To American Bank Note Co., 900,000 Fertilizer Stamps .....	315.00	
	<hr/>	
	\$ 705.00	
To balance .....	202.50	
	<hr/>	
	\$ 907.50	\$ 907.50

1912.

Jan. 1—By appropriation for year 1912 .....	\$ .....	\$1,800.00
Jan. 1—By balance brought forward .....		202.00
Jan. 16—To American Bank Note Co., 500,000 Fertilizer Stamps .....	175.00	
Feb. 19—To American Bank Note Co., 800,000 Fertilizer Stamps .....	280.00	
Apr. 15—To American Bank Note Co., 700,000 Fertilizer Stamps .....	245.00	



1912.

Apr. 15—To American Bank Note Co., 300,000 Fertilizer Stamps .....	105.00	
Apr. 15—To American Bank Note Co., 100,000 Fertilizer Stamps .....	35.00	
Apr. 15—To American Bank Note Co., 100,000 Fertilizer Stamps .....	35.00	
Apr. 15—To American Bank Note Co., 100,000 Fertilizer Stamps .....	35.00	
May 2—To American Bank Note Co., 300,000 Fertilizer Stamps .....	105.00	
June 11—To American Bank Note Co., 100,000 Fertilizer Stamps .....	35.00	
June 28—To American Bank Note Co., 100,000 Fertilizer Stamps .....	35.00	
Aug. 13—To American Bank Note Co., 600,000 Fertilizer Stamps .....	210.00	
Aug. 15—To American Bank Note Co., 200,000 Fertilizer Stamps .....	70.00	
Sept. 4—To American Bank Note Co., 100,000 Fertilizer Stamps .....	35.00	
Oct. 21—To American Bank Note Co., 300,000 Fertilizer Stamps .....	105.00	
	<hr/>	
	\$1,505.00	
To Amt. due to balance..	497.50	
	<hr/>	
	\$2,002.50	\$2,002.50

TRAVELING AND OTHER CONTINGENT EXPENSES, COMMISSIONER OF AGRICULTURE.

1911.

Jan. 2—By appropriation for first six months, 1911 .....	\$	.....	\$	125.00
Jan. 1—By balance brought down.				178.15
July 1—By appropriation for last six months, 1911 .....				125.00
July 11—To Florida's portion of expenses in connection with the meeting and printing of proceedings of Southern States Association of Commissioners of Agriculture and other Agricultural Workers held in Atlanta, Ga., Nov. 1910 .....			35.00	
Nov. 13—To Expense to Interstate Fair and return .....			15.00	
Nov. 18—To 1 Mileage Book (S. A. L.) .....			20.00	
Dec. 4—To Expense of Trip to Marion Co., and Interstate Fair at Pensacola .....			22.50	

\$ 92.50

To Amt. due to balance .. 335.65

\$ 428.15    \$ 428.15

1912.

Jan. 1—By appropriation for year 1912 .....	\$	.....	\$	250.00
Jan. 1—By balance brought forward .....				335.65
Apr. 13—To Florida's Portion of expense of reporting and printing the proceedings				

2—C. A.

1912.

of the meeting of the Association of Southern Commissioners of Agriculture and other Agricultural Workers, held at Nashville, Tenn., Nov. 1911 ..... 35.00

Nov. 4—To expense of trip to Interstate Fair at Pensacola, October 30 to 31st, 1912.. 15.50

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\$ 50.50

Amount to balance ..... 534.15

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\$ 585.65    \$ 585.65

PRINTING QUARTERLY BULLETIN, AGRICULTURAL DEPARTMENT.

1911.

Jan. 2—By appropriation for first six months, 1911 .....\$ ..... \$1,000.00  
 By amount brought forward ..... 221.00

Apr. 19—To T. J. Appleyard, printing Quarterly Bulletin for April ..... 1,140.00  
 To Amt. on hand to bal... 81.03

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\$1,221.03    \$1,221.03

1911.

July 1—By appropriation for last six months, 1911 .....\$ ..... \$1,250.00

July 1—By balance brought down.. 81.03

Aug. 25—To T. J. Appleyard, Printing Quarterly Bulletin for July, 1911 ..... 595.00

1911.

Oct. 20—To T. J. Appleyard, Printing Quarterly Bulletin for		
Oct. 1911 .....	559.35	
	<hr/>	
	\$1,154.35	
Amount to balance .....	176.35	
	<hr/>	
	\$1,331.03	\$1,331.03

1912.

Jan. 1—By appropriation for year 1912 .....	\$ .....	\$2,500.00
Jan. 1—By amount brought forward .....		176.68
May 11—To T. J. Appleyard, Printing Quarterly Bulletin for April, 1912 .....	1,144.00	
Aug. 8—To T. J. Appleyard, Printing Quarterly Bulletin for July, 1912 .....	617.10	
Sept. 3—To T. J. Appleyard, Printing 2000 extra Quarterly Bulletins .....	261.00	
Oct. 12—To T. J. Appleyard, Printing Quarterly Bulletin for Oct. 1912 .....	883.57	
	<hr/>	
	\$2,905.67	
By deficiency to balance..	\$	228.99
		<hr/>
		\$2,905.67

STATIONERY AND OTHER CONTINGENT EXPENSES.  
AGRICULTURAL DEPARTMENT.

1911.

Jan. 2—By appropriation first six months, 1911 .....	\$ .....	\$ 350.00
Jan. 2—By balance brought down..		145.51

## 1911.

Jan. 3—To Marshall Bruce & Co., sundry stationery supplies	36.66
Jan. 3—To H. N. Sweeting, 1 clock.	8.00
Mcb. 8—To Marshall Bruce & Co., envelopes .....	51.20
Mch. 11—To T. J. Appleyard, fur- nishing and printing 2,000 postal cards .....	24.00
Mcb. 20—To Remington Typewriter Co., ribbon coupon book..	12.50
Mch. 29—To T. J. Appleyard, fur- nishing and printing 1,000 cards .....	12.00
Apr. 1—To J. F. Hill, sundry sta- tionery .....	9.00
Apr. 4—To W. U. Telegraph Co., March bill .....	20.29
Apr. 5—To Southern Express Co., March bill .....	25.55
Apr. 10—To H. & W. B. Drew Co., Neostyle Supplies .....	5.65
May 4—To H. & W. B. Drew Co., Neostyle Supplies .....	4.95
May 4—To Southern Express Co., April bill .....	13.36
May 8—To W. U. Telegraph Co., April bill .....	15.36
May 19—To H. C. Davison & Co., 1 dozen copy books .....	36.45
May 22—To Freight and drayage on books .....	1.52
June 1—To Postal bill for May in- cluding April Bulletin....	87.48
June 1—To D. R. Cox Furniture Co., letter cabinet .....	41.00

1911.

June	1—To Freight and drayage on typewriter supplies .....	1.63	
June	2—To J. W. Corhert, repairing chair .....	1.00	
June	7—To Southern Express Co...	19.54	
		<hr/>	
		\$ 427.08	
	Amt. due to balance .....	68.43	
		<hr/>	
		\$ 495.51	\$ 495.51

1911.

July	1—By appropriation for last six months, 1911 .....	\$ .....	\$ 400.00
July	1—By balance brought down.		68.43
July	1—To Remington Typewriter Co., supplies .....	33.94	
July	1—To H. & W. B. Drew Co., litho letter heads .....	45.90	
July	1—To Remington Typewriter Co., 1 new typewriter ....	69.70	
July	8—To T. J. Appleyard, 100 crop blanks .....	2.00	
July	27—To H. & W. B. Drew Co., oiled paper, 10 reams ...	12.00	
July	27—To Remington Typewriter Co., 1 set keys .....	3.50	
Aug.	1—To Remington Typewriter Co., 1 new machine exchange .....	31.00	
Aug.	3—To J. F. Hill, ink, ink-stand and oil .....	1.85	
Sept.	1—To H. & W. B. Drew Co., 1 gross pens .....	75	
Sept.	29—To Dues to Am. Prison Assn. for 1911 .....	5.00	

## 1911.

	Report of above Association .....	1.50	
Oct. 2—	To T. J. Appleyard, State Printer, 100 crop blanks..	2.00	
Oct. 31—	To Southern Stamp & Stationery Co. ....	18.86	
Nov. 2—	To J. F. Hill, ledger and inks .....	1.60	
Nov. 24—	To Subscription to Manufacturers' Record Sept. 8, 1911 to Sept. 8, 1912 .....	4.00	
Dec. 22—	To H. & W. B. Drew Co., stationery and ribbons ..	8.00	
		<hr/>	
		\$ 241.60	
	Amt. to balance .....	226.83	
		<hr/>	
		\$ 468.43	\$ 468.43

## 1912.

Jan. 1—	By appropriation for year 1912 .....	\$	800.00
	By amount brought down		226.83
Jan. 3—	To Gilmore & Davis, Yale lock .....	3.00	
Jan. 4—	To T. J. Appleyard, letter heads .....	7.00	
Jan. 4—	To T. J. Appleyard, 2,000 salary vouchers .....	2.00	
Feb. 6—	To H. & W. B. Drew Co., 5,000 letter heads .....	27.50	
Feb. 6—	To Dan Allen, freight and drayage on books .....	1.52	
Feb. 6—	To freight and drayage on 18,000 maps .....	24.40	
Feb. 6—	To J. F. Hill, blank books.	1.75	

1912.

Feb. 6—To T. J. Appleyard, State Printer, sundry supplies for Convict Inspector....	10.50
Feb 6—To T. J. Appleyard, State Printer, sundry stationery supplies .....	15.10
Feb. 19—To H. C. Davison & Co., 1 dozen copy books .....	36.45
Mch. 1—To freight on roller maps & drayage .....	4.89
Mch.. 2—To Remington Typewriter Co., 2 ribbon coupon books	14.00
Mch. 2—To Louis Costa, repairing mailing machine .....	1.00
Mch. 4—To T. J. Appleyard, State Printer, 2,000 letter heads	7.00
Mch. 4—To T. J. Appleyard, State Printer, 500 envelopes ...	2.50
Mch. 4—To T. J. Appleyard, State Printer, 500 expense account blanks Convict Inspector .....	4.00
Mch. 4—To T. J. Appleyard, State Printer, 100 crop report blanks .....	2.00
Mch. 6—To Valdosta Typewriter Exchange, for repairing office typewriter machines.	28.00
Apr. 2—To J. F. Hill, stationery supplies .....	2.40
Apr. 2—To freight on envelopes, Holyoke, Mass. ....	3.13
Apr. 2—To T. J. Appleyard, State Printer, post cards and yellow sheets .....	12.20



1912.

Apr. 3—To U. S. Envelope Co., 2000 No. 75 and 2000 No. 70 envelopes .....	45.33		
May 11—To T. J. Appleyard, State Printer, making 3 cuts for April Bulletin .....	20.00		
May 14—To freight and drayage on letter press .....	1.26		
June 3—To H. & W. B. Drew Co., leter press and rubber stamp .....	27.02		
June 3—To Collins Printing Co., 5000 letter heads .....	20.00		
June 3—To T. J. Appleyard, State Printer, 300 copies Chapter 5609 as amended .....	5.40		
June 8—To freight on wrapping paper, H. & W. B. Drew Co. ....	2.72		
July 2—To Southern Express Co., June bill .....	50.37		
July 2—To H. & W. B. Drew Co., wrapping paper, six reams	21.00		
July 2—To D. R. Cox Furniture Co., 2 filing cases .....	\$	\$	1.00
July 10—To T. J. Appleyard, State Printer, 100 crop blanks..	2.00		
July 10—To T. J. Appleyard, State Printer, 250 instructions to enumerators .....	8.00		
July 10—To T. J. Appleyard, State Printer, 300 receipts or bills .....	2.00		
July 10—To J. F. Hill, sundry sup- plies .....	3.40		

1912.

July 10—To H. & W. B. Drew Co., 20 lbs. India twine .....	3.00
July 10—To subscription to Florida Grower .....	1.00
Aug. 2—To H. N. Sweeting, repair- ing adding machine .....	5.25
Aug. 2—To J. F. Hill, stationery supplies .....	3.00
Aug. 2—To Southern Express Co., July bill .....	47.62
Aug. 3—To H. & W. B. Drew Co., 1 pair scales .....	2.00
Aug. 3—To W. U. Telergaph Co., July bill .....	19.39
Aug. 8—To Remington Typewriter Co., 1 machine .....	71.00
Sept. 3—To Southern Express Co., Aug. bill .....	21.29
Sept. 3—To T. J. Appleyard, State Printer, paper, paste and wrappers .....	3.00
Sept. 6—To W. U. Telegraph Co., Aug. bill .....	13.44
Sept. 10—To freight and drayage on stationery .....	1.06
Sept. 11—To D. R. Cox, 12 transfer cases .....	5.40
Oct. 1—To H. & W. B. Drew Co., 10,000 letter heads .....	49.00
Oct. 1—To H. & W. B. Drew Co., stationery .....	16.80
Oct. 1—To H. R. Kaufman, clean- ing and adjusting type- writer, and 1 ribbon .....	4.75
Oct. 1—To Southern Express Co., Sept. bill .....	21.26

1912.

Oct. 3—To T. J. Appleyard, 2000 envelopes for Convict Inspectors .....	4.50
Oct. 3—To T. J. Appleyard, 100 crop report blanks .....	1.50
Oct. 3—To W. U. Telegraph Co., Sept. bill .....	41.04
Oct. 19—To Subscription for one year to "Business America" for office use .....	3.00
Oct. 23—To Burrough Adding Machine ribbon .....	1.00
Nov. 4—To Postal bill for Oct.....	110.91
Nov. 4—To W. U. Telegraph Co., Oct. bill .....	25.57
Nov. 4—To Southern Express Co., Oct. bill .....	12.27
Nov. 4—To J. F. Hill, stationery..	1.00
Nov. 4—To T. J. Appleyard, composition plate .....	1.50
Nov. 4—To T. J. Appleyard. 2000 Commissions Fruit Inspectors .....	2.25
Nov. 4—To T. J. Appleyard, furnishing and printing 1,000 postal cards .....	12.50
Nov. 4—To T. J. Appleyard, 200 Pure Food Guarantees ...	2.00
Nov. 4—To T. J. Appleyard, 5,000 yellow sheets .....	8.00
Dec. 2—To Southern Express Co., Nov. bill .....	18.90
Dec. 12—To Harrell Brothers, repairing press .....	2.50
Dec. 17—To Manufacturers' Record, subscription for one year	4.00

1912.

Dec. 17—To H. & W. B. Drew Co.,		
Stationery .....	1.75	
Dec. 17—To Zion Office Supply Co.,		
seal and stamp .....	1.90	
	<hr/>	
	\$ 966.69	
To Amt. to balance.....	60.11	
	<hr/>	
	\$1,026.80	\$1,026.80

**DIVISION**  
**OF**  
**AGRICULTURE**

## DIVISION OF AGRICULTURE.

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Article 4, Section 26 of the Constitution provides that "The Commissioner of Agriculture shall perform such duties in relation to Agriculture as may be prescribed by law, shall have supervision of all matters pertaining to the public lands under regulations prescribed by law, and and shall keep the Bureau of Immigration. He shall also have supervision of the State prison and shall perform such other duties as *may be prescribed by law.*"

### CHANGE IN FORM OF PRINTING REPORT.

This book contains the report of the Department of Agriculture, Industries and Immigration only, the other three Divisions being also contained in separate publications. This is an innovation on past printing methods, but is made necessary by the greatly increased amount of work of the Department. If the work of all branches of the Department were published in one book as formerly, its usefulness would be very much impaired as a medium for distributing through the mails the fullest and most reliable information concerning the resources, advantages and products of our State because of its unwieldy size and weight. Copies of any one of the divisions in separate form can be had on application.

### FOREWORD.

It is not inappropriate here to make some reference to the volume of work in brief detail, as performed and accomplished in this division and in connection with the subjects discussed in various forms in the pages that follow.

Number of letters written on Agricultural subjects and in relation to Immigration, approximately..	15,000
This does not include duplicate or circular letters.	
The number of maps distributed to applicants by mail for the two years 1911 and 1912.....	20,000
Number of packages containing printed informa- tion sent in reply to inquiries concerning the State .....	28,000
Number of Quarterly Bulletins used in Immigra- tion work and mailed to applicants on request beyond the State .....	23,000
Number of Quarterly Bulletins mailed to regular subscribers (no subscription fee) .....	48,000
Number of Express packages handled by this division .....	500
Number of packages by registered mail .....	200
Number of Telegraph Messages received and an- swered approximately .....	450

Just reading over the bare statements and figures above made, conveys no conception of the vast amount of work required to properly direct and perform the duties entailed upon the office by the varied character of the demands for information.

This does not include the work of gathering and compiling the Agricultural and Industrial and other Statistics of the State, nor the preparation of the vast quantity of matter for publication in various forms with which to meet the ever increasing demand for information in a more or less detailed form.

As a matter of fact, the inquiries concerning Florida no longer come from the curious, but from people who are interested and wish to make new homes in our State. They mean business and we have to meet them in a business way; no high colored pictures of Imagination and reckless assertions will satisfy them and it is not wanted. The country has been deluged with that by the designing

and the unscrupulous beyond the limit of forbearance and it should be suppressed by law. Facts alone are what is asked for, and that is what this Department offers them in reply. It makes no statement that it cannot verify. It considers the truth good enough, and that is precisely what will be found in these pages, placed there for the benefit of all those who wish to know something of the advantages, possibilities and opportunities in Florida open to and within the grasp of all capable, industrious and enterprising people.

#### AGRICULTURAL MATTERS.

##### *Observations and Suggestions.*

Two years have elapsed since we directed attention in similar respect to the wonderful strides made by our State in Agricultural and Industrial affairs, and ventured the assertion that the future would over-reach the past far beyond our greatest expectations, and it is true; the progress and advancement by our State in the lines of Agricultural and Industrial development during the two years just past has attained results the like of which was never dreamed of by the most optimistic person of a few years ago. Considering the rapidity of the change in what may be justly termed an era of transformation, the events of the recent past appear as ancient history. When we reflect upon the remarkable success attained by those engaged in the various branches of agricultural pursuits, we perforce realize that there is practically no limit to the capacity of our soils or our resources and possibilities for industrial development.

With the great and continued improvements in methods of planting, manuring and cultivating the numerous crops, largely through the aid of improved implements, the yields have been increased to a remarkable degree. Indeed it is not unusual for the grower of such crops as



lettuce, celery, cauliflower, tomatoes, eggplants and other crops under an intensive system of cultivation, to receive from three to five hundred dollars per acre, and in many instances with as high as eight to twelve and even fifteen hundred dollars per acre. Under old time methods such yields would have been impossible; nor are these methods alone practiced in the production of vegetable crops, the same improvements have been and are being rapidly extended into the cultivation of the standard field crops such as cotton, corn, oats, velvet beans, cow peas and others. In this direction great assistance is being given the farmers of the State through the Farmers' Institute work under the direction of Prof. P. H. Rolfs, Director of the Experiment Station. The results in the work of these agencies have been so successful as well as surprising that thousands either wholly or in part have adopted new and better methods of farm practice.

This Department has in every way possible added what it could towards the improvement of all branches of farm work by correspondence and by the publication of bulletins on the best methods for the growing of vegetables, fruits, nuts and standard field crops, description of soils and their adaptability to the production of various crops. Further on in this report a number of the articles above referred to will be found. They are placed in this report for the use and benefit of not only the farmers of our own State, but for the thousands of people from other states who are contemplating a change of residence to Florida and who will seek the information they contain preliminary to coming to our shores. These people are entitled to this information and the only practical way of supplying it is in printed form, and that is in this report.

#### AGRICULTURAL EDUCATION.

In previous reports we discussed at some length the

advisability if not the necessity of teaching agriculture in the common schools of the State. Whether our remarks had much or little to do with the result obtained, we do not know, but it came about exactly as we wished, and today agriculture in its primary form is one of the permanent studies in our common schools. But why stop here? Why not enlarge upon the subject and provide still other branches? Add something on the breeding and care of live stock, school experimental plots, where pupils may come in actual contact with the practical side as well as the theoretical. The Legislature can easily make this possible, and in doing so, can perform no greater service to the coming generation.

Throughout the country and the State as well vast sums of money are being expended in pushing to the most exalted height the professions of every kind. To be sure there is greater interest being awakened in agricultural affairs than ever before in the world's history; but why should agriculture lag behind? As a science it is the peer of any, and instead of trailing in the dust of enforced ignorance it should lead all the others.

Pnt to pursue the subject further, and in line with the tremendous development that is taking place in all branches of agricultural economics and industrial pursuits, there is an ever increasing demand for expert help that it is impossible to supply. This Department is continually in receipt of applications direct for information as to where such assistance can be procured. Of course this Department cannot supply it, nor can any institution of learning in the State do so either, it is not to be had. But it is in the power of the Legislature to provide it. Florida is well known to be *one of the richest States* in the Union in proportion to population. She has no public debt, but she can command if necessary, practically unbounded credit, because she has the resources to sustain it.

## COLLEGE OF AGRICULTURE.

In view of the conditions above set forth a College of Agriculture under full control and maintained by the State in active connection and cooperation with this Department, would be a long step in overcoming the disadvantages previously referred to, and provide the young men of the State the opportunity of an agricultural education, which they could apply to the better management of their own farms, in assisting others, or in filling positions of trust where expert knowledge is required and in demand. In maintaining such a school only board should be charged for at cost prices.

There could also be county scholarships established, say one free from each county for the full term, with the provision that the graduate in this case pledge himself to carry on a demonstration or experimental farm in his county for a period of one or two years as the case might be. In this way, there will be maintained in constant operation in each county an experimental farm or station, which would be open to visits of one or more of the Professors of the College of Agriculture, at stated periods, and to the citizens of the county at all times. Thus would each county be able to show and prove the character and quality of its soils and the products best suited to them. The importance of this subject will be admitted by all. The beneficial effects of such a work cannot be questioned successfully or denied by any one. Such an Institution need not in any manner or degree conflict with, or interfere with the Agricultural and Mechanical College and Experiment Station connected with the State University. But it would have a broader scope of action and influence for good. There is abundant room for both, for both together cannot possibly supply the demand that will be made upon them. The foundation of every State is the education of its youth. The true prosperity of a country is based upon its agricul-

tural conditions, not upon the largeness of its revenues or its capacity for brilliant show. Therefore on the cultivation, education, enlightenment and character of its citizens depends the future welfare of the State. Herein lies its truest interest, its chief strength, its greatest power.

#### INSTITUTION OF TECHNOLOGY.

This is another Institution of vital importance to our State, and can undoubtedly be successfully carried on in connection with and on the same grounds as the College of Agriculture. The same buildings properly divided and suitably arranged will amply serve the purpose for many years. The close connection of the two institutes and the benefits to be derived through this Department will serve a double purpose, as it is to be expected that some students in either school will wish to receive instruction in both.

With such an Institution as this, we will be able to keep our young men at home to help build up our State, adding to its industrial development and progress. The State needs them, and they are our own, therefore we should give them this opportunity by the establishment of a technological institute. The State can easily afford it. It cannot afford not to have it. It can perform no higher or nobler duty than the education of its sons. If we wish convincing testimony of the value of such an institution to the young men of this State, read the history and the results of their work in Georgia, the Carolinas, Virginia, Alabama and other states.

This is not a theory we are discussing, but a condition that demands a remedy. The State can and should supply it. Can it afford to refuse it?

#### SUGGESTIONS—SPECIAL CROPS.

Some suggestions which we believe worthy of atten-

tion by the people generally of the State and those engaged in any one or all of the agricultural pursuits is that it is well for each farmer to make a specialty of some crop while at the same time practicing diversification of crop production to as great an extent as possible.

There are many side crops adapted to the various sections of the State that pay fancy prices, and which usually come at a time of the year or season when conditions are such as to create a demand out of the ordinary. This rule holds good also as to standard crops. We suggest as an example in the latter line sugar cane growing and manufacturing either into syrup or sugar. Syrup is preferable for the single farms or for a very few. Sugar manufacturing is better for a large number either on some cooperative plan or by a company of large capital.

Sugar cane growing is without doubt destined to be one of the most profitable industries in our State. Its products are rapidly growing in demand, not without reason, for the margin between production and consumption is so wide that the danger of over supply need not be considered. As an instance, the consumption of sugar per capita in 1911 in the United States was about 82 pounds, the production of all kinds of sugar in the United States was only about 10 pounds per capita. In this connection we direct attention to the fact that of all the southern States Florida has the greatest area of all, adapted to the successful growing of sugar cane of highest quality. Conservatively speaking there are at least twelve million acres of lands in Florida unexcelled anywhere in the United States for the purpose, and if all the wet lands of the State were reclaimed for cultivation she could furnish sugar for the world, and feed millions of people besides. Therefore sugar cane growing is not likely to be over done.

If the twelve to fifteen million acres of wet lands in Florida were reclaimed they would add over three hun-

dred millions of dollars to the value of our resources. Then why not more drainage districts? Good business policy demands it.

#### LIVE STOCK.

Another farm specialty is live stock of all kinds. Whatever branch of farming is carried on, live stock should form as large a part of it as possible. It is one of the greatest aids to successful crop production, as well as one of the surest means of making money. Unfortunately in our country the cattle tick is a menace of serious proportions to cattle growing, and before cattle growing on a large scale can be continued with the degree of success that it should, effective measures must be adopted and carried out for the complete eradication of the tick. We urge the necessity for this action upon the attention of the Legislature as one necessary to, not only the preservation of the cattle industry as it stands, but what is of greater importance its building up and improvement by the introduction of new and better breeds.

#### NO FENCE LAW.

In connection with live stock growing is the necessity for the fencing of stock to prevent the destruction of the crops of the farms—truck and fruit grown. This is a very important question. Many favor it and many oppose it. The sooner, however, preparations are made to meet it the better. The large bodies of wild lands are fast being bought up by settlers. The thousands of people who are coming to our State to make homes will need and demand protection for their farms, gardens and orchards from the depredations of roaming live stock. This is the best time to meet the issue.

## COÖPERATIVE LAND BANKING OR LAND CREDIT ASSOCIATIONS

This is a subject that is attracting world wide attention and that under proper conditions and organization foreshadows much needed relief and assistance in behalf of the agriculturist. This is apparently to come through a system of "Cooperative Credit Associations."

The chief object is to enable farmers who own land to make loans on long time at much reduced rates of interest.

Similar Institutions have been in successful operation in a number of European countries for many years, where they are practically the only banks patronized by the great majority of the farmers. Through the aid of these banks, farmers have been enabled to build up their farms, restoring the fertility of their soils, so that the productive capacity of their lands has been largely increased. The science of agriculture as well as agriculture itself has been raised to the highest standard. They also exert an educational influence which is natural under improved conditions that relieves man of the anxiety due to financial uncertainty. They teach the farmers business habits, the uses of credit as well as cash, and how to apply them profitably. Thus it encourages and creates a feeling of self reliance and independence, which tends to elevate them in their ideas and purposes of life. The time is fast approaching when such institutions will be established throughout the length and breadth of this country. Care will be needed in their establishment and also control. They will require ability and foresight to secure the best results, especially in the beginning, and also the protection of the law. This is a very different thing from commercial banking and should not be confounded with it in any particular.

This is a subject whose importance should attract the serious attention of the Legislature. Properly created and safe guarded, they will be one, at least, of the great

est hoons to the farmers of Florida within the purview of the Legislature. We recommend that provision be made for the appointment of a commission of five, to be composed of Lawyers, Farmers, Merchants and Bankers, who shall thoroughly investigate the subject and make reports of its finding to the Legislature.

### GOOD ROADS.

Good roads are a public asset.

Bad roads, a blot upon a country's intelligence, and a menace to its industrial conditions.

If a public asset, then the building of good roads is good public policy.

It is a necessity to successful farming and rural travel. It often means to the farmer the difference between affluence and bankruptcy. Its savings in the wear and tear of vehicles as well as horse flesh, or auto power, will go far towards keeping the roadways in repair. Good roads are a necessary adjunct to the successful maintenance of the country schools. Good roads make regular attendance upon these schools a possibility. Bad roads make it practically impossible a great part of the time.

Good roads are necessary to regular delivery of rural mails and increase the benefits to be derived from Parcel Post. Good roads are really a very practical sort of public utility, that the people own and control, free from corporate influence or manipulation.

Good roads are prime reducers of the high cost of living, especially by rural peoples. They increase the farmers' profits, make country life more pleasurable and encourage a desire for the most useful avocations of life.

Thus good roads promote improvements on every hand by creating habits of thrift, independence, happiness and contentment, and make each community a power for good in the land.



It is not necessary that great sums of money be spent in either building or repairing these highways, but whatever sum or sums are used should be expended carefully and intelligently.

We offer no suggestions as to the methods of building or the character of the labor to be used; these are subjects for the engineer and the community, county or the State to determine as the case may be. But good roads is one of the greatest questions before the people of our community or county and the State as well today. It is a subject that will not down.

It is said that "a man is known by the company he keeps"; apply the rule here; and the time is near at hand when the people of a community, a county or a state will be judged by the character of its public highways. Can Florida afford such comparisons?

#### IMMIGRATION.

A synopsis of the detailed work of this Department under this head appears on previous pages, and indicates clearly the volume of the work transacted through this Department, because there is no separately established Bureau of Immigration charged with the duty of caring for the business. True the Constitution requires the Commissioner of Agriculture to "keep the Bureau of Immigration," but in the absence of adequate help, this work must be and is performed by the clerical force of the Department of Agricultural.

Now conditions have practically reached that stage when the volume of work is so heavy that either additional clerical help and funds must be supplied the Department to enable it to care for the work properly, or a Bureau of Immigration must be created.

#### BUREAU OF IMMIGRATION.

A properly and efficiently equipped Bureau of Immigra-

tion would undoubtedly be of immense benefit to the State. In addition to advertising the resources and advantages of the State correctly and without exaggeration, in every section of the United States, or elsewhere when advisable, it should have the authority to protect home seekers and investors against wild cat schemers, whether they be in the form of so called land and colonization companies or individuals. There are good companies who are doing a fair and legitimate land business in the State, and there are unquestionably a number of fraudulent concerns whose sole object is to fleece every man and woman who comes in their way, of every dollar possible. These men should be caught up with and punished or driven from the State unless they adopt legitimate methods of doing business. Under the guise of real estate dealers they make a business of deceiving and swindling the unsuspecting and uninformed. They buy either for cash or on long time, tracts of the cheapest lands they can find; then place a fictitious value of several hundred per cent on them above their cost, and through the grossest misrepresentation of what they are good for, painted in glowing word pictures and untruthful deceptive so called photographs of their lands, they lure their unsuspecting victims into making contracts for what they call—farms, on installment payments—on investigation these farms are often found to be located in ponds, swamps or sand hills. Thousands of innocent persons have lost their all through these swindlers. Therefore, we say that if a Bureau of Immigration is established, and it should be, that it be given the authority to investigate any of these land development schemes whose methods of doing business excite suspicion. The State of Florida cannot afford to pass this question by unnoticed, or without correction. The good name of the State demands it. The companies and individuals doing a legitimate business in the development and sale of their

lands demand it also and they have a right to insist upon a correction of the evil.

Any law establishing such a Bureau should be broad in its scope, liberal in the encouragement of immigration, yet conservative in its preferences or selections of only the most desirable people. The criminal classes and the shiftless tramps who go on the plan that the world owes them a living, or the "blood suckers" who pose as the victims of infirmity are not wanted. The man who comes to Florida with the idea that he can get a living without work, had better not come, neither should the person who has not some spare money, enough at least to pay his way for, say about six months or longer. No where on the American Continent can the industrious right living man find a better country, a more congenial climate or a more responsive soil, no where can he make as good a living and create a competence for the future with less labor and personal effort as in Florida, if he but observe the laws of common sense and ordinary business requirements.

#### A WORD OF CAUTION.

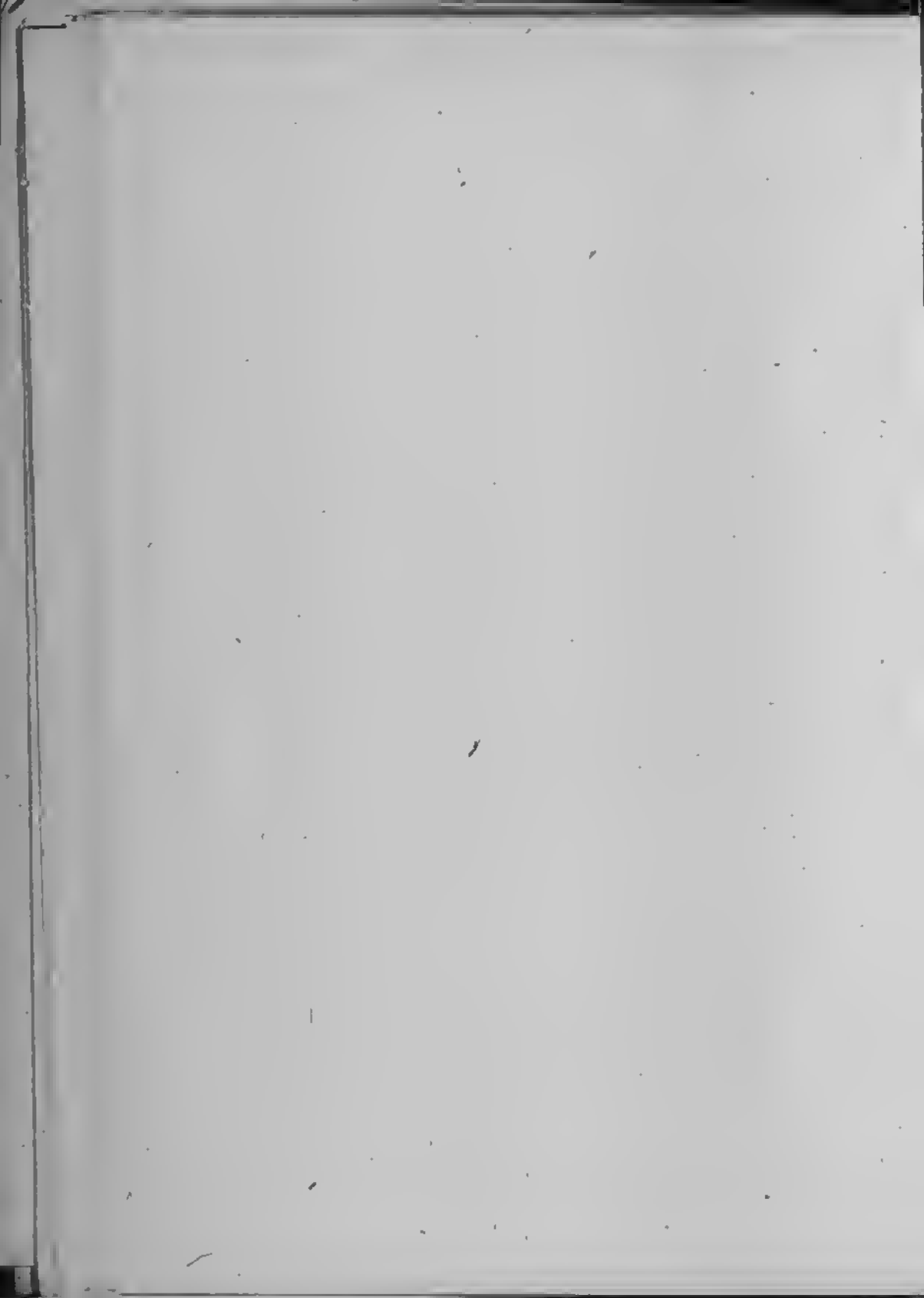
To those persons who are contemplating a removal to Florida we offer a few words of caution, and advise them that, before they make any purchase of lands or even enter into any contract to purchase, that they first pay a visit to Florida and make a personal investigation of the lands offered them. No matter who it is that makes the tempting offer, make them wait till either you can investigate personally or through some undoubted reliable source. There is no scarcity of land in Florida. Millions of acres of good lands are still here to choose from. Unless this course is pursued, there can be no certainty that the interested homeseeker will get what he wants. But see what you buy first is our advice, then you will know what you are getting and your choice is likely to be

satisfactory, besides it is due to both yourself and the seller that you use common sense methods and proper business precautions.

#### METEOROLOGICAL REPORT.

This report will be found included as usual. It is one of great value as well as interest to the people of our own State, and particularly useful to the thousands of persons who are contemplating a change of residence to Florida or making investments in the State.

The weather service at all seasons of the year is a great protection to the farmers, vegetable and fruit growers of the State through its system of storm and temperature warnings, as well as to those engaged in ocean commerce. It is also specially worthy of publication for the history it makes relative to the meteorology of the State. It supplies information of a character that is constantly in increasing demand and which cannot as well be obtained by or distributed to those wanting such information as when given publication in our official reports. The report for 1911 follows the Agricultural Statistical report for 1911-12.



# **THE POSSIBILITIES OF SUGAR PRODUCTION IN FLORIDA.**

By

**R. E. ROSE,**  
**State Chemist.**

## **PREFACE.**

The constantly growing demand for information and literature on the subject of cane growing and sugar manufacture in Florida, particularly since the widespread interest on the subject caused by the State's undertaking the drainage of the Everglades, has induced me to re-publish this pamphlet, "The Possibilities of Sugar Production in Florida."

There are a few facts not generally known that should be stated as a preface.

The general conditions are the same now as when the pamphlet was published in 1900. The increase in consumption has continued, while the price of sugar and syrup has materially advanced, with every indication that they will not again decline, but will continue to advance as the consumption increases, the consumption per capita being 83.00 pounds, against 65.5 pounds in 1900.

Machinery has advanced in price. At the same time it has been improved, and processes made more economical, thus reducing the cost of manufacture.

This applies not only to the factory, but to the field. Improved implements for cultivating and harvesting the crop have materially reduced the cost of production.

Sugarcane is successfully grown in all the counties of Florida and those of South Georgia and Alabama.

It is successfully and profitably cultivated one hundred miles north of the Gulf of Mexico.

While cane is a tropical plant and obtains full maturity only in those regions where frost is practically unknown, it is profitably produced in the Southern portion

of the Temperate Zone—as in Southern Louisiana, Georgia and Alabama and North Florida, where for nine months there are no frosts. Full maturity demands twelve months' freedom from frost.

South of the twenty-seventh parallel in Florida cane reaches its full maturity—annually—as is evidenced by its forming “tassels” or seed arrows, a condition only possible when the plant is fully mature.

However, the largest acreage and most numerous fields of sugarcane in Florida are found in the northern counties—the agricultural counties—where corn, cotton, sugar cane and dairy farms predominate, as distinguished from the southern or peninsular counties, where citrus fruits, early vegetables (truckings) and pineapple growing are the principal occupations.

While vast sugar plantations formerly existed—“before the war”—on the Halifax River, in Volusia County; on the Manatee River, in Manatee County; on the Homosassa River, in Citrus County, the industry has been abandoned for the more fascinating orange grove and truck farm.

The soil best adapted to cane is well drained, low hammock, swamp, or bottom land, though fine crops are grown on high, rolling lands. Still 90 per cent. of the cane grown in Florida or Louisiana is grown on well-drained, rich, bottom lands, cypress swamps and reclaimed marshes.

No heavier crops, nor richer cane has been produced in any country than has been grown on the reclaimed (drained) saw grass marsh lands of Florida; lands identical in every way, physically and chemically, to the saw grass muck lands of the Everglades.

These lands, the Everglades, when properly and perfectly drained, will produce maximum crops of sugarcane at minimum cost.

The soil of the “Everglades” is similar in composition to the marsh and swamp lands of Southwest Louisiana—



No. 1—Cane Cutting at St. Cloud, Florida, 1888-9. Reclaimed Muck Land, six to eight feet deep, formerly covered with water. Yield 60 tone per acre. Photo by Havens.



in the Parishes of Lafourche, Terrebonne, St. Mary and other Parishes—where vast areas of overflowed marshes and swamps have been reclaimed by canals, levees, or ditches, and by a system of drainage pumps similar to those used in Holland. Vast areas of these Louisiana swamp lands are now cultivated in sugarcane and rice. The Everglades are similar, physically and chemically. They, however, have a greater altitude, being from eight to twenty-one feet above tide level, while a large part of the reclaimed lands of Southwest Louisiana are but little above tidal overflow, and all of them below the high water level of the Mississippi River, requiring levees and pumps to insure drainage and immunity from overflow by floods in the Mississippi.

The Everglades can, and will, be drained by gravity—only requiring canals sufficient in number and size to carry off the rain water from a comparatively small watershed.

The lowering of Lake Okeechobee by canals to tide water in the Gulf and Atlantic, of greater cross-section than the streams flowing into the lake, will not only prevent overflow from the lake, but will provide means for the land owners adjacent to the canals to drain their fields into the canals by proper laterals and field ditches.

It is not contemplated that the State canals will drain the adjacent fields, but that they will provide an outlet for the waters of the lateral canals and field ditches, constructed by the land owners.

When this vast area of wonderfully fertile soil is properly reclaimed by the State canals and the necessary laterals constructed by the land owners, no more productive sugar fields can be found in this or any other country. Fields which when properly drained and intelligently cultivated will produce maximum crops of sugarcane, rice and corn at a minimum cost of production.

Dr. H. W. Wiley, late chief chemist of the United States Department of Agriculture, in his report on these

lands, published in the Report of the Secretary of Agriculture for 1891, says:

"In this region the sugarcane is absolutely free from any danger of frost, although occasionally light frosts have been known to injure more delicate plants.

"It may be said, then, with confidence, that in the region of Lake Okeechobee the lands that may be recovered for sugar-making purposes have all the advantages of the climate of Cuba.

"The manufacture of sugar from the cane in this region may be postponed with perfect safety until the beginning of February, and the months of February, March and April will be of greatest activity in sugar manufacture.

"Another important consideration in connection with the muck lands of the Okeechobee country is found in the method contemplated for their cultivation. These lands will be intersected by numerous drainage canals and by means of these canals not only can the land be cultivated from steam engines carried on boats in the canals themselves, but also the products of the fields can be transported on the same canal, with an economy which will render the competition of mule or horsepower methods of cultivation almost impossible.

"Competent engineers have made estimates for the actual cost of steam cultivation on the canal system indicated above, and, allowing for all contingencies for unexpected expense, it appears reasonable to say that, with the yield of cane which can be secured on such lands, it will be possible to place the cane at the doors of the factories by means of a system of canals used in irrigation and cultivation at an expense which will fall below \$2.00 per ton. This expense in-

cludes all the cost of cultivation, harvesting and transportation.

"It is not necessary to dwell upon the fact that with cane produced upon such a cost, even the Island of Cuba could not compete with Florida in the production of sugar. There is practically no other body of land in the world which presents such possibilities of developments as the muck lands bordering the southern shores of Lake Okeechobee. With a depth of soil averaging, perhaps, eight feet, and extent of nearly a half million acres, with a surface almost level, it affords promise of development which reaches beyond the limits of prophecy."

Dr. Wiley's conception of steam plows in the Glades in 1891—twenty years ago—was based upon the successful use of steam apparatus in cane culture at that date. The gasoline motor was then practically unknown. To-day the gasoline excavator and "tractor" are successfully used on these lands, while the "cane loader," operated by the gas motor, has reduced the cost of harvest more than half. Mechanical loaders are now the rule in Louisiana. The cost of cane production under efficient and economical conditions has been reduced to \$1.50 per ton, or less, on all fields large enough to economically employ the "tractor" and "loader." Should Dr. Wiley now visit the Glades he would see his prediction of 1891 practically fulfilled.

In the meantime the small farmer will continue to produce crops of superior sugarcane in the other parts of the State, particularly the northern counties, where the conditions are such as to make the manufacture of choice table syrup more profitable than sugar-making.

When central neighborhood factories are established similar to the central creameries of the West, where expert syrup makers, with improved apparatus, will handle the crops of the neighborhood—thus producing 50 per cent

more syrup, or sugar, from each ton of cane of a superior, uniform quality—the business will become one of the most profitable and reliable in the State.

Any soil in Florida that will produce a fair crop of corn will produce a corresponding crop of sugarcane.

A white frost does not injure sugarcane. On the contrary it checks its growth and hastens maturity. A freeze kills the "buds," or eyes, and destroys the germinating quality—hence frozen cane is unfit for "seed" (cuttings). Frosted cane will make good syrup or sugar if it be "made up" before the cane ferments.

In the northern counties of Florida seed cane is preserved by "bedding," "mat-laying" or "windrowing." When properly windrowed cane is readily kept in good condition for planting, or the factory, for months. Thousands of acres are thus preserved in perfect condition for the factory in Louisiana, South Georgia and Alabama.

The report of the Commissioner of Agriculture for 1911 shows that cane culture is well distributed over the State, with by far the largest acreage in the northern counties in the following order:

Jackson .....	864 Acres.	Wakulla .....	173 Acres.
Leon .....	564 "	Escambia .....	155 "
Jefferson .....	559 "	St. Johns .....	241 "
Hamilton .....	171 "	Alachua .....	284 "
Bradford .....	334 "	Baker .....	89 "
Columbia .....	421 "	Clay .....	69 "
Madison .....	291 "	Hernando .....	103 "
Washington .....	260 "	Franklin .....	50 "
Hillsborough .....	373 "	Volusia .....	69 "
Polk .....	80 "	Marion .....	172 "
Duval .....	205 "	Lake .....	57 "
DeSoto .....	180 "	Lafayette .....	67 "
Liberty .....	209 "	Orange .....	3 "
Holmes .....	263 "	St. Lucie .....	33 "
Santa Rosa .....	453 "	Brevard .....	2 "
Calhoun .....	221 "	Palm Beach .....	10 "
Levy .....	86 "	Citrus .....	136 "
Walton .....	248 "	Dade .....	6 "
Gadsden .....	1199 "	Lee .....	97 "
Pasco .....	165 "	Nassau .....	166 "
Putnam .....	80 "	Pinellas .....	33 "

No reports are made for Monroe, Osceola, Sumter, Su-



Japanese Sugar Cane, on Farm of C. E. Pleas, Chipley, Fla.

Courtesy of Southern Ruralist, Atlanta, Ga.

wannee and Taylor, in all of which there are considerable acreages planted in cane.

Southern counties have generally neglected to report their cane crops. The total acreage for the State reported in 1911 was 9,475 acres—valued at \$920,693.00, or \$98 per acre. It will be noted that more than half this acreage was produced in the northern tier of counties. It is safe to say that, using better machinery, mills and evaporators, this value could readily have been increased 50 per cent, or to \$147.00 per acre.

With a modern central sugar, or syrup, factory, similar to the beet factories of the West, the value of the product would have been at least double, or \$200.00 per acre.

There is no agricultural product more staple than sugar—no crop more certain to produce a fair return. A total failure of a cane crop has never been recorded. The price fluctuates less than that of any other staple. Sugar, formerly a luxury, is now recognized as a necessity.

Varieties: The principal varieties are the Bourbon (Red or Purple); the Red and Yellow Ribbon; the Green, or Simpson, and the Crystalline—probably the parent of all the above except the Simpson. A number of new seedling varieties have been recently propagated by the Louisiana Experiment Station. Among them D 74 and D 95 are a vast improvement on the older kinds. Parties interested in the subject should write the Louisiana Sugar Experiment Station for bulletins and other information.

A distinct variety, the Japanese Cane, introduced from Louisiana by the U. S. Experiment Station in 1885-9, is a first-class syrup cane and a wonderful forage plant. It is practically a perennial in Florida. Once established it will reproduce itself from the roots annually. It will withstand ten degrees more frost than ordinary cane, and reproduce itself the following season. Bulletin No. 105, of

the Florida Agricultural Experiment Station, in Gainesville, Florida, on "Japanese Cane for Forage," by Prof. John W. Scott, gives much valuable information regarding this variety.

Persons desiring more information on the subject of cane culture, sugar and syrup manufacture should write the United States Department of Agriculture for its various publications on the subject, particularly Bulletins of the Chemical Division—Nos. 70 and 75—on the "Manufacture of Syrup From Cane." Also for Farmers' Bulletin No. 131—Sorghum Syrup Manufacture. The rules and processes therein are equally applicable to cane syrup. Also obtain the various bulletins of the Louisiana Sugar Experiment Station at Audubon Park, Louisiana, on cane culture and sugar manufacture, and particularly Bulletin No. 120 of the Louisiana Station on "Syrup Making," by Prof. H. P. Agee.

The "Louisiana Planter and Sugar Manufacturer," published in New Orleans, is recognized as the leading exponent of cane culture and sugar manufacture in America. In its columns will be found the advertisements of the leading manufacturers of sugar machinery and plantation supplies.

## THE POSSIBILITIES OF SUGAR PRODUCTION IN FLORIDA.

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Before entering upon the subject, "The Possibilities of Sugar Growing and Manufacture in Florida," it is well to examine the business from a national standpoint, that we may appreciate the demand for the article and the amount annually imported to meet this demand. The American people are the greatest consumers of sugar in the world. Our market for foreign sugar is acknowledged to be the best known. We import annually practically *five thousand million pounds*, or 2,500,000 tons. The actual figures for 1897 were 4,918,905,733 pounds imported, the per capita consumption for the same year being 64.5 pounds.

Sugar is the only agricultural product which the United States imports. Of all other crops we export enormous quantities. We have an enormous surplus of wheat, corn, animal product, tobacco and cotton. Few realize how large a part of our exports is required to pay for the sugar we import. No two articles exported—except cotton—exceed in value the sugar imported. Our enormous exports of wheat—\$59,920,000—pay but little more than half our sugar bill; our tobacco exported—\$24,711,000—less than one-fourth, while all the animals—cattle, hogs, mules, sheep and poultry—exported pay less than half the amount paid for sugar imported.

Recently the production of American sugar has been nearly doubled by the establishment of the beet-sugar



industry in the West and North. Vast sums have been expended in Michigan, New York, Kansas, California, Washington and other localities. Still, with all these resources, the United States produces less than 16 per cent of the amount consumed within her borders.

The average price of "Standard A" sugar for the ten years ending in 1897 has been 5.04 cents per pound; the highest in 1888, 7.50 cents; the lowest in 1894, 4 cents per pound. No article of general consumption fluctuates less in price than does sugar. It will be noted also that during the years 1888, 1889 and 1890, when raw sugar was "free" with a "bounty" to "American producers" and a "tariff on refined goods," the price was from 6 to 7.59 cents per pound. A condition to be expected with "free raw material" and a "protective tariff" on the "finished article," be it sugar, iron, leather or cloth. Sugar is now, and has been for some time, 5½ cents per pound for "Standard A." With the assistance of the "American sugar refineries," I have no doubt that price will be maintained and most likely increased.

The recent testimony of Henry O. Havemeyer, president of the American Sugar Refining Company, of J. N. Jarvie, of Arbuckles & Bro., and of John H. Post, of the Mullenhauer, and the National Sugar Company, before the Industrial Commission, throws considerable light on the question of sugar growing and sugar refining in the United States.

Mr. Post's declaration that "free sugar from Cuba would wipe out American raw sugar, both beet and cane," is certainly true. However, he did not say what effect it would have on the refined article.

In 1888 and 1889, under the "bounty law" with free sugar, the price of "Standard A" sugar averaged 6.69 and 7.50 cents per pound, though raw sugar was imported free; and none but high-grade domestic sugar received a bounty.

That the price of refined sugar to the American public would be at all reduced by the importation of raw sugar free of duty is not to be expected, judging from past experience. If Cuba refined her sugar (which she does not), and it was imported free of duty, sugar would certainly be cheapened. This, however, is not the policy (or business) of the American refiners, be they in the Trust or independent.

Their business is to buy raw sugar cheap and sell it refined for all they can get for it. There is now a duty of 0.95 cents on raw sugar and 1.95 cents on refined goods, with a "differential" of  $\frac{1}{2}$  cent added to refined sugar and a further addition of a "countervailing" duty equal to the amount of bounty paid by any country exporting sugar to the United States.

To read the testimony one would imagine that but  $\frac{1}{2}$  cent duty was collected, when, in fact, practically 2 cents per pound are collected, affording a revenue for nearly \$100,000,000.

Free raw sugar from Cuba will benefit no one but the refiners. It will destroy the American raw-sugar industry, an industry now of little importance, as raw sugar is not valuable in America, except to refiners, who don't wish to encourage the growing of sugar in the United States, knowing that the grower will soon discover (as he has done in Louisiana) that by using modern methods, late improvements in manipulation, with economical and labor-saving devices, he can for less cost make more refined sugar from his cane than he could formerly make of raw sugar, and sell it direct to the consumer at prices 25 to 50 per cent more than he can now get for his raw product delivered at a refinery.

There is a considerable amount of bumbag and mystery mixed up with this refining business. Chemists and experts look wise and talk about "glucose," "sucrose," "invert sugar," "coefficients," "polariscope tests," "Beaume" and "brix" simply to confuse the public. The facts are

that a modern central mill can take the cane direct from the farmer, and, by a no means expensive or difficult process, thoroughly purify the juice, and make a standard article of granulated sugar, ready for the table, equal to any, at a less cost than can the farmer make a brown sugar with his crude and wasteful apparatus and methods.

At the same time this modern central mill will double the output of granulated sugar from each ton of cane, as compared to output of the open-kettle or steam train.

The beet-sugar manufacturer has recognized that fact, and uses none but the latest improved apparatus, and makes none but refined sugar. He is independent of the refiner and sells direct to the trade.

Louisiana is rapidly learning this lesson, and is now building numerous central mills or refineries to make refined sugar only.

When Florida, with her superior climate and soil, builds central mills or refineries, she can make sugar at a profit in spite of free raw sugar from Cuba, as she will have the assistance of the Sugar Trust and the beet-sugar grower in maintaining the price of refined sugar.

In other words, there is a large profit in manufacturing a finished article (*vide* the Sugar Trust), while a raw product finds slow sale at reduced prices.

Florida can make more refined sugar direct from the cane, for less cost per pound, than she at present makes raw sugar; she can increase the yield fully 50 per cent per ton of cane over present conditions, and increase the value per pound fully 30 per cent. This is but a matter of education—when our farmers begin to think and then combine their practical knowledge and labor with capital and skill now seeking profitable employment, the question of the American supply of sugar will be solved by the cane belt of the United States making the necessary amount to supply the demand.

The beet grower will soon discover that he cannot compete with cane, and will naturally gravitate into the

cane belt, where his profits will be greater and his crops more certain.

I have recently been asked for a comparison of the cost of making raw and refined cane sugar, and the advisability of erecting small plants to make brown or raw sugar or syrup.

Local circumstances must, of course, govern all cases, hence a reply must be general in its nature. I will state that a modern, up-to-date factory, with all the latest labor-saving and economical devices, similar to those used by the best and most prominent cane and beet sugar growers, double or triple mills, bagasse burners, modern clarifiers, filters, multiple effects, centrifugals and granulators, will turn out a dry granulated sugar for 25 per cent. less than an open-kettle or open steam-train factory can turn out brown sugar, and at the same time will increase the yield of sugar over the old open apparatus not less than 25 per cent. from the same quantity and quality of cane, while the product will readily sell at any part of the United States for 50 per cent. greater price than raw sugar

A factory to turn out 50,000 pounds of granulated sugar per day can be erected in Florida for \$200,000. Allowing the raw material (cane or syrup) to cost 50 per cent. of the selling price of sugar, 50,000 pounds will pay the grower \$1,343; cost of manufacture (75 cents per 100 pounds), \$375; net profits of factory per day, \$869; gross daily proceeds, \$2,687.

These figures are based on present prices of sugar—i. e., 53.8 cents for standard granulated. The factory should run 100 days, showing a net profit of \$86,900 per season. Such a factory will require 300 tons of cane (or its equivalent in syrup) per day, and will consume the product of some 1,500 acres of average Florida cane. There is not a town or village in the State, from Pensacola to Jacksonville, or from Jacksonville to Tampa or Miami, that cannot furnish within a short distance twice

the required acreage for such a mill. A thousand such mills would be required to produce the 5,000,000,000 pounds imported annually (in 1897 we imported 4,918,905,733 pounds).

An open steam-train factory, to make brown sugar and syrup, handling say 100 tons (or five acres) per day, can be erected complete for \$20,000 to \$25,000; the yield per ton of sugarcane will not exceed 140 pounds of sugar, while the cost of manufacture will not be less than 1 cent per pound of sugar. Deducting the grower's half at  $4\frac{1}{2}$  cents, \$3.15 for raw sugar (obtainable only in New York, Philadelphia, New Orleans or other cities where refineries are located), and the cost of manufacture, \$140, a net profit of \$175 a day is shown. A season of sixty days is all such a factory can depend upon, or \$10,500 net for the season.

The modern factory will make 170 pounds granulated sugar per ton of cane, pay the farmer \$4.56 per ton and net the factory \$3.29 per ton of cane. The "open house" will pay the farmer \$3.15 per ton and net the factory \$1.75 per ton of cane. The product of the modern house will find a ready sale wherever offered. The open-house sugar can only be sold to a refinery, as the American public will use none but the best granulated sugar.

The following letters from Paul Dupuy, a practical Louisiana sugar planter and manufacturer, of thirty-five years' successful experience in that State, and from Prof. William C. Stubbs, Ph.D., director of the Louisiana Sugar Experiment Station, fully sustain the position held by myself for years as to the adaptability of the soil and climate of Florida for profitable sugar growing and manufacture. Doctor Stuhbs is probably correct as to having analyzed the first Georgia canes. I, however, published in 1890 the first series of analyses of Florida canes, and have at divers times since. I am particularly gratified to have Mr. Dupuy, a practical planter, and Doctor Stuhbs, the most eminent authority on sugar growing and



No. 3—Sugar Mill at St. Cloud, Florida, 1888-9. Capacity 400 tons cane or 70,000 lbs. granulated sugar per day.

Photo by Havens.

manufacture in the United States, so positively and unequivocally endorse the position I have maintained almost single-handed for years. It now remains for our farmers and capitalists to unite (co-operate), and develop an industry which has no superior in stability and regularity of crops, that is immensely profitable to grower and manufacturer, and for the product of which there is an enormous demand at home. Twenty-five per cent. of the sum invested in our palatial hotels would pay larger profits directly, and indirectly add large sums to the annual profits of our transportation lines, at the same time increasing the wealth of the people in the State, adding enormously to our population, enhancing the value of our farms, and making Florida the wealthiest agricultural State in the Union:

"SAN ANTONIO, FLA., December 31, 1899.

*"Captain Rose.*

"DEAR SIR: I enclose you a letter from Professor Stubbs, which please return. Coming from such an unquestionable authority, it seems that there should not longer be any doubt on the subject.

"It is certainly a foolhardy undertaking to continue trying to grow oranges, vegetables and other tender stuff in Florida. Sugar, with the facts set forth in this letter, offers about the only agricultural product that Florida can turn to. I am surprised at Mr. Stubbs' statement in regard to the productiveness of these lands, but the statement cannot be controverted, and must be accepted. The leading question is not so much as to how much can be made per acre, but how much per hand. The fact that large amounts were realized on oranges has proved ruinous to Florida.

"It does seem that prosperity can only be attained by growing a staple. The attempts with fires and tents and houses over orange groves can only lead to further disaster.

"My own observations are that pine-land cane is richer in juice or sucrose than that grown on other lands.

"I have come to the conclusion that St. Cloud was no test. Bad management was perhaps more the cause of results at St. Cloud than otherwise.

"If Florida does not engage in a staple industry the agricultural classes will go deeper into the mire. While heretofore I have doubted the capacity of Florida to produce sugar, this letter of Mr. Stubbs, coming as it does from one entirely disinterested, is conclusive. There should no longer be any hesitancy about promoting cane culture.

"Therefore, I will be glad to render what service I can to assist in promoting it. Orange culture has ruined all of us.

PAUL DUPUY.

"P. S. With a sucrose of 15 per cent. and 73 per cent. extraction, with an average of twenty tons per acre, with labor at \$15 a month, and \$1.50 per eighteen hours in grinding, cane can be grown and converted into sugar at less than \$30 labor cost.

P. D."

(With above conditions, twenty tons per acre, 15 per cent. sucrose and 75 per cent. extraction, a yield of 180 pounds per ton, or \$3,600 pounds per acre, should be had, or a total labor cost of less than 1 cent per pound).

*"Mr. Paul Dupuy, San Antonio, Fla.*

MY DEAR SIR: Your letter received and contents noted. During the latter part of October it was my privilege to visit southern Georgia and northern Florida, from Savannah around to Montgomery, Ala., and I was amazed to find the extent to which sugarcane was grown, and the quantity of syrup annually made for the market. What struck me most was the inefficient work of the small horse-mills and evaporators which they were using in that section, and yet I was told by everybody that it paid them better to make syrup at 17½ cents a gallon—extracting not one-half the juice from the cane, and evaporating



that to syrup without any chemicals whatever, and only by the crude process of skimming and beat—and that there was more money in it than in raising cotton or any other crop in that section. I found crops varying in extent from one acre up to 150 acres. I spent several days in the field and weighed quite a number of areas growing in cane, and to my astonishment found that the yields were from sixteen to thirty-five tons of cane. I also found out that, by tightening the horse-mills that they had, the extraction could easily be made as high as 60 per cent. Armed with this information I addressed large bodies of farmers and planters and small growers of cane all through that section, and got them interested in their losses, with the result that week before last eleven of the planters and farmers visited this station, and I introduced them around to our various sugar houses and introduced them into the improved methods of today. This stirred them up very considerably, and they now realize that if under their present management they can make a limit, there is a big profit for them should they adopt improved methods. Their lands are poor, but, by proper fertilization and rotation of crops, they can be made productive of good results. I may say, further, that their cane is unusually rich. I have just finished analyzing another batch of nineteen varieties, grown all through that section, and all show a large superiority in sugar content to those grown upon alluvial soils. I have no hesitancy whatever in saying—with the present price of labor, of land, the abundant supply of fuel all through the country, the absence of levees, the absence of drainage, as long as the present price of sugar is maintained—that sugar growing and manufacturing upon a large scale in that section can be made profitable beyond a doubt. I have not seen the articles to which you refer, but it is difficult to misrepresent the conditions of affairs there existing. And the curious thing, as you assert in your letter, is that they have never known that they were subjecting

themselves to such severe loss, and that they had such a superior cane, until my visit last October. I suppose that I analyzed, a few weeks ago, the very first canes analyzed in Georgia, and it was a revelation to them as well as to me.

"I shall be glad to give you any further information in my power. Very truly yours,

WM. C. STUBBS, Director."

The report of Prof. Wm. C. Stubbs, director, of the Louisiana Sugar Experiment Station, on the analyses of some thirty-seven samples of Florida cane, certainly shows most conclusively the superiority of Florida's product. Taking the average of the thirty-seven samples, we find the following result:

Sucrose .....15.04 per cent.

Glucose ..... 1.78 " "

Coefficient of purity.....81.68 " "

This is certainly a good average for the State. It means, with modern apparatus, a yield of 187.53 pounds of granulated or pure sugar per ton of cane. A fair average in Louisiana is 160 pounds.

This analysis also shows that the purple (red) and striped (ribbon) cane is far superior to the green in sugar content, and has much less glucose in it; hence, is by all means to be preferred for sugar making—fact long since discovered by Louisiana and South Georgia.

The thirteen samples of purple and striped cane show the following average:

Sucrose .....17.12 per cent.

Glucose ..... 1.08 per cent.

Coefficient of purity.....88.02 " "

or an available sugar content (with modern apparatus) of 204 pounds of pure sugar per ton of cane.

It is not necessary to go into figures to show the superiority of the red over the green varieties.

In an open-system kettle or evaporator just one-half of the above results can be expected in raw or brown sugars.

It is needless to say that the modern apparatus is to be preferred, making refined goods direct from the cane. Louisiana has discovered this, and is rapidly discarding the open system for the close system. There are numbers of factories of the old style thrown out and now offered at very low figures. They are dear at any price.

The sugarcane that will make 100 pounds of raw or brown sugar and 100 pounds of molasses by the old system will make 200 pounds of pure white or granulated sugar in an up-to-date vacuum or close system with modern separators, filters, evaporators, etc.

At the same time, while the old system will require not less than three cords of wood for each acre of cane (or ton of raw sugar), the modern apparatus will require no fuel but the pulp or bagasse.

It actually costs more per pound to make an inferior brown sugar than a refined white sugar. One yields one half the number of pounds of an inferior article of little value and hard to dispose of; the other an article always in demand at most profitable prices.

With a cane averaging as the purple canes in Prof. Stubbs' report averaged, sugar can be manufactured for 40 cents per 100 pounds. At twenty tons to the acre the cane can be grown, harvested and delivered for \$2 per ton, making the actual cost of sugar (200 pounds per ton of cane) \$1.40 per hundred pounds, or less than 1½ cents per pound. I have maintained that, under proper economical methods, with modern apparatus, first-class "Standard A" sugar could be grown and manufactured in Florida at a profit, when selling at 2 cents per pound. In addition to the foregoing testimony in sustaining my position, I also quote Mr. J. S. Murray, a most practical and successful sugar grower and manufacturer:

"Estimate prepared by Mr. J. S. Murray, former General Manager Soledad Sugar Estate, Cuba.

"From reliable data, taken from actual work at the St. Cloud Sugar Factory, near Kissimmee, Fla., we have the

following result on 100 acres of land, thirty tons of cane per acre:

Preparation of soil at \$2.50 per acre.....	\$ 250.00	
Seed cane, four tons per acre, \$4 per ton.....	1,600.00	
Planting .....	250.00	
Two weedings .....	200.00	
Three plowings .....	600.00	
Cleaning ditches .....	50.00	
Harvesting 3,000 tons cane at \$1.....	3,000.00	
Profit first year.....	2,450.00	
Price of sugar 3½c per lb.= \$2.80 per ton of cane		\$8,400.00
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	\$8,400.00	\$8,400.00

\* \* \* "There is reason to believe that south of the frost line as many crops can be made from one planting as in Cuba, and that cane will ratoon for from nine to ten years; that 300 acres of cane, properly cared for and cultivated, will produce \$8,000 net profit per year." \* \*

It will be noted the above figures are only from the growers' standpoint, the cost of the cane delivered at the mill being \$1.96 per ton. The cost of seed cane and all charges are fixed at maximum prices, with sugar far below present quotations. These figures were made some years ago and based on ninety-six test sugar, similar to that made in Cuba. The same quantity of standard granulated goods (less 4 per cent. water) can be made from the same cane. On the basis fixed "one-half the product" this cane would pay the grower \$4.54 per ton (170 lbs@ 5.35 cents—\$9.09 per ton of cane).

The same authority says:

"In Cuba sugar can be, and has been, manufactured ready for shipment at a cost of less than 30 cents per 100 pounds. Labor and other conditions being nearly the same in Florida, there are no reasons why sugar cannot be manufactured for 40 cents per 100 pounds in Florida.

"In late years cane has been paid for delivered on the cars or alongside of cane carrier at prices based on the weight of juice in degrees B., increasing or decreasing 5

cents per degree for each half cent per pound selling price of sugar.

"From the preceding data we have:

Nine thousand tons of cane (juice, 9.4 B), at \$3.15 per ton.....	\$23,350.00
Manufacturing 1,530,000 lbs. of sugar at 40s. per 100 .....	6,120.00
Profit .....	19,080.00
One million five hundred and thirty thousand pounds of sugar at 3½c. per lb.....	\$53,550.00
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	\$53,550.00    \$53,550.00"

On the basis of 300 acres, with thirty tons of cane per acre, yielding 170 pounds of sugar per ton—by no means an unusual yield—at present prices (5.35 cents) I estimate the result as follows:

9,000 tons of cane delivered at mill, \$4.54 per ton.....	\$40,860.00
Cost to grow and deliver, \$1.96 per ton.....	17,640.00
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Grower's profit on 300 acres.....	\$23,220.00
Profit per acre to grower, \$77.00.	

The factory account would stand thus:

9,000 tons of cane @ \$4.54.....	\$40,860.00
Manufacturing 1,530,000 lbs. sugar @ 40c. per 100 lbs. ....	6,120.00
Factories' profits .....	34,875.00
1,530,000 lbs. of sugar at 5.35 cents.....	\$81,855.00
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	\$81,855.00    \$81,855.00

While Mr. Murray's estimate based on raw sugar shows a most profitable result to both grower and manufacturer, the product of refined goods for the American market is by far the most profitable to the American producer. On the rich alluvial soils alluded to by Mr. Murray the yield of thirty tons per acre is not unusual; yields of far greater tonnage have been frequently made. On good pine or sandy lands yields of thirty tons are by no means uncommon. As stated by Dr. Stubbs, sixteen to thirty tons were found in divers localities last year, one of

the shortest years had in many. My general estimate of twenty tons per acre, with an average yield of 175 pounds per ton, with a manufacturing cost of not to exceed 75 cents per 100 lbs., I consider well within reasonable bounds. The area of lands suitable for cane culture is practically unlimited. There are few townships in the State not capable of furnishing a mill with a capacity of 5,000,000 to 10,000,000 pounds of sugar per season. While vast areas of hammock and marl lands are found from the St. Marys to Key West, from Pensacola to Jacksonville, eminently suitable for the crop. The lands of north and middle Florida are conceded to produce a superior cane to those heavy muck or alluvial lands of the lower peninsula. Their season is shorter and the crop has to be replanted oftener, though the tonnage is less.

In all of the counties of this State and in Southern Georgia, Alabama, Mississippi and Louisiana good crops of sugarcane are raised. Barring the great freeze of 1886, 1895 and 1899 no frost so materially damaged cane has occurred in this State.

A white frost does not injure sugarcane. On the contrary, it causes it to ripen its juices and make better sugar. A killing frost destroys the "bud" and injures the cane for seed only. If properly windrowed immediately after freezing and before fermenting, such cane will make good sugar for some sixty days after windrowing. The freezes of 1886, 1895 and 1899 did not kill stubble or ratoons on well-drained lands in Florida.

In the northern counties, if seed is desired for spring planting, the cane should be "hanked" or "matlaid" in November. In South Florida windrowing will answer the purpose. The best portion of the cane for seed is the immature top, with the leading eye or "bud." Fall planting is preferable in Florida, adding three months to growing season of the crop.

In cutting the cane it should be cut low, at or below the surface of the soil. Stubble projecting above the soil



No. 4—Sugarcane In Tassel Marsh, Fellemere, Florida.  
Courtesy of East Coast Homeseeker.

is apt to be injured by frost. Allow the trash or cane fodder to remain on the rows until spring opens. Well-cared-for stubble will ratoon for three years in most parts of this State; longer in the southern portion. Much depends upon the quality of the soil and the method of culture.

There are several popular kinds of cane. The "Oth-hite," or large green, is a favorite for use in small mills. It is easily crushed and yields well, and is the best for chewing. It is tender, and requires a long season. "Red ribbon" is a favorite all-around cane for small mills. It rattoons well, and makes a fine yield of syrup. "Bor-bon" or red cane is hardy, grows quickly, matures early, and for the northern sections is the favorite. It is very hard and requires a powerful mill to extract its juices. For South Florida the "Crystalline" is probably the best. It is a rank grower, fairly early, a first-class stubble cane, and makes a good stand year after year.

Any soil in Florida that will produce a fair crop of corn will make good sugarcane; the richer the better. Clay and marl subsoils are preferable, if well drained. Flat pine land, with a clay subsoil, well drained and fertilized, makes fine crops.

Nothing is better than "cow penning." On fair pine land, and medium hammock thirty tons per acre are frequently made the first and second years after "cow penning." Cotton-seed meal, 500 to 1,000 pounds per acre, is a first-class fertilizer, containing all of the necessary elements in about the correct proportions. It should be applied one-half before planting and the balance during the second working.\*

All low and flat lands must be thoroughly drained. Cane will grow in moist, but not in wet lands. Low

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\* Note—A better formula would be—

1200 pounds Cotton Seed Meal.

600 pounds 18% Acid Phosphate.

200 pounds 50% Sulphate of Potash.

Making a ton. Apply 500 to 1,000 pounds per acre.



hammocks, swamps and saw-grass marshes, thoroughly drained, make the best of cane. If not drained perfectly a failure will result. The permanent "water table" should not be less than three feet below the surface of the soil.

That portion of the cane that has shed its blades is mature; in November one-half to two-thirds of the stalk; in December, four-fifths or more. For sugar making none but mature cane should be used (the tops can be used for seed). For syrup a part of the immature tops can be used, the glucose adding to the volume and preventing crystallization. Early ground cane makes the best syrup; late or mature cane the most sugar.

Small mills are wasteful and are not advised; better sell the cane to a custom mill. A well-built, horizontal, three-roll mill, powerfully constructed, driven by steam, to extract from 50 to 60 per cent. of the total weight of the cane in juice, with boiler and engine, to grind forty tons of cane per day, with fire-heated evaporators, can be erected complete for about \$3,000. This outfit is only suitable for making syrup and dripped sugar. While a vast improvement on horse-mills and kettles, it is wasteful and comparatively expensive.

A double mill (six rollers), with steam train (evaporators), bagasse furnace and centrifugals, to make a light-yellow, clarified sugar, with a capacity of sixty tons of cane per day (7,500 pounds sugar), will cost, approximately, \$15,000. These mills, while a vast improvement on present crude methods, and capable of yielding from 20 to 30 per cent. greater product, with less labor and fuel, are still very wasteful in labor, fuel and cost of attendance. However, they will pay large profits, as compared to other agricultural pursuits. Such mills will care for 100 to 200 acres.

A mill handling from 400 to 800 tons of cane per day requires no greater number of skilled employes, engineers, sugar makers, etc., uses little fuel, the waste of house

is reduced to a minimum, the extraction is practically perfect (80 to 82 per cent.), practically no labor is required after the cane is placed on the carrier, the product is ready for immediate consumption. Such a house should make none but granulated sugars, at a cost not to exceed that of crude sugar or syrup, with a much greater yield.

The plant is peculiarly robust and easily cared for, subject to few disasters. It will withstand degrees of drought or flood fatal to all other crops. No peculiar skill is required to cultivate it, as is the case with beets. After years of personal observation and having consulted large numbers of practical growers, I am justified in saying a total failure of a cane crop has never been known. Any one who can raise Indian corn can make sugarcane. One man can easily attend twenty acres. While beets are a good crop for Kansas and Nebraska, there can be no comparison between the results of sugarcane and beets in the profitable growing and manufacture of sugar.

The cost of the manufacturing plant and the cost of manipulation are in favor of cane. The item of fuel (furnished by the "bagasse" from the cane) will alone pay a fair interest on the cost of the plant.

No risk in growing cane is reduced to a minimum. No one has ever heard of a total failure of a cane crop. Corn, wheat, oats, rice, cotton and beets sometimes totally fail from drought, heat, rust, blight, or insect pests. Excepting from an overflow caused by a break in a levee, a cane crop was never lost entirely.

As to climate, Florida's climate is certainly superior to that of any other State for sugar growing. Our "rainy season" is during the growing months, when required. A wet fall or winter is the exception. A dry fall and winter insures the ripeness of the cane and a quick harvest; a wet fall or winter (frequent in Louisiana) retards the ripening, and entails heavy expense for harvest. A "killing" frost seldom occurs in Florida before January. Grinding begins October 15 in Louisiana, and seldom

before December 1 in Florida, insuring forty-five additional days for maturing the crop. In South Florida killing frosts are of rare occurrence, and grinding continues from December 15 to February. In tropical Florida, south of the 27th parallel, frost to kill oranges, lemons, limes or tropical cane is unknown. The climate of West, North and Middle Florida has full thirty days longer growing season than Louisiana, while South Florida has forty-five to sixty.

In tropical Florida the element of frost does not come into the calculation. Grinding may begin when the crop is ready and extend into the next growing season. As to quality of cane, little has been done in Florida to select or improve the plant; in fact, the poorest, short-jointed, stunted stubble is generally used for "seed," while the best and finest cane is worked up. The same varieties introduced by the Jesuits are still grown. This neglect of selecting seed cane, however, is not peculiar to Florida. The same careless methods prevail to a large extent in Louisiana and Cuba. Had the same care and scientific experimenting been practiced with cane as with beets during the last twenty years, the amount of sugar in the plant could have been largely increased (though average tropical cane now contains much more sugar and less impurities than the best varieties of beets).

The wonderful recuperative and reproductive powers of the plant are phenomenal. With good soil and culture, wonderfully fine cane, rich in sugar, vigorous and thrifty, is frequently grown from seed canes of the most worthless quality. Small, knotty, short-jointed stubble, the result of years of neglect, when replanted in good soil and well cared for, have made crops of immense weight and large sugar content, with little impurities in the juice. No plant more quickly responds to generous treatment, and none will suffer greater neglect and still return a fair harvest than will tropical cane.

Much interest is now had in beet culture and sugar

6-C.A.



No. 2—Harvesting Cane at St. Cloud, Florida, 1889-9. Yield 60 tons per acre. Reclaimed Muck Land.  
Photo by Havens.

making in the West. Were it generally known that larger amounts of sugar can be made in Florida, at a much less cost per acre, with less labor, with but little skill required in growing, with far less capital required for machinery, and manufacturing, than in beet-sugar making, vast sums would be invested in the business. The location of central mills, at various parts of the State—near Quincy, Tallahassee, Madison, Lake City, Gainesville, Ocala, Leesburg, Brooksville, Lakeland, Plant City, Bartow, Fort Meade, Punta Gorda and Bradentown—could each afford a supply of cane for mills making each 5,000,000 or more pounds per annum. On the St. Johns River and East Coast, St. Augustine, Hastings, De Leon Springs, Tomoka, Daytona, Port Orange, New Smyrna and Titusville afford equally as fine opportunities for the establishment of central mills.

These mills or factories, purchasing their supplies from the farmer, can afford to pay for the cane delivered, a price, equal to the sum now obtained for his crude syrup, now made in a crude and wasteful manner, saving the farmer the annoyance and cost of manufacture, and packages, and at the same time make large profits on the capital invested.

Further south in Dade and Lee Counties, below the twenty-seventh parallel, where vast areas of rich land in large bodies can be had, the plantation or "gang-system" will prove most satisfactory, where the planter owns the factory and cultivates the cane also. This system is applicable only where there is no probability of killing frost, where large fields can be safely allowed to stand till wanted by the mill. North of the twenty-seventh parallel the central-factory system, similar to the beet-factory system of Germany, Austria and the West, will be found most satisfactory. Where the acreage is made up by numerous small fields of ten to forty acres each, each farmer, in case of threatened freezing weather, can properly care for his crop by windrowing or mat

laying, as is now practiced in Georgia, Mississippi and frequently in Louisiana.

The crop can then be delivered as the factory requires it. This process of securing the crop adds but little to the cost and keeps the cane perfectly for months. No silos or bins are required for cane as with beets. The delay caused by a cold snap seldom retards the work of sugar making to exceed three days.

I advocate the central-mill plan, purchasing cane from the farmers, that the best results may be had both in the field and in the factory, the farmer devoting his time, skill and labor, to producing the largest possible crop of high-grade cane, the miller to the most economical methods of making the best sugar, each receiving the greatest reward possible for his skill in his particular line.

For technical data, analyses and value of cane, I am indebted to Dr. Stubbs; Professors Stockbridge, Kirchoff, Sutton and Wiley and Mr. J. P. Murray as to the quality of the cane. I have the facts as to cost of cane from L. M. and U. J. White, James S. Murray, Paul Dupuy and numbers of others, together with my own experience. The cost of manufacture cannot be disputed, as this factor is a fixed one.

Given the cane of quality as stated, with the price of sugar as now prevailing, and no agricultural and manufacturer's business will compare to the growing of cane and manufacture of sugar in Florida.

R. E. ROSE.

KISSIMMEE, FLA., May 1, 1900.

## THE DISSTON SUGAR PLANTATION.

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### Its Success and Its Failure.

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It is frequently asked why the Disston Sugar venture on reclaimed lands in Florida failed and was abandoned. This query has been answered frequently in the press by citizens of Osceola County, who were familiar with all the facts.

A short history of the St. Cloud sugar plantation on the muck or swamp lands reclaimed by the "Disston Drainage Company" (The A. & G. C. & O. Land Company), in Osceola County, should be properly inserted here to correct the many erroneous and misleading reports as to the cause of the failure and abandonment of this enterprise after several years of phenomenal success, both agriculturally and financially.

The lands on which the plantation was located were prior to the cutting of the drainage canals in 1884—a vast saw grass marsh, interspersed with cypress, gum, bay and willow swamps, with a muck or peat soil from four to ten feet deep. Before the drainage canals were cut the territory was constantly covered with water from one to three feet deep, in which grew the saw grass, flags, rushes, bonnets and other aquatic plants—a territory identical in every respect, chemically and physically, to the Everglades. The canals draining this territory were finished in 1884-5. The general level of the lakes (Tohopekaliga and East Lake) was lowered eight feet by these canals. During 1885, the writer, then in charge of the "Disston Drainage Company's" works, purchased the original St. Cloud Plantation, some 420 acres.

In January, 1886, the first agricultural development was begun by cutting the necessary lateral and sub-lateral ditches to drain the fields adjacent to the canal. Though the waters of the lakes and canals were six to eight feet below the surface of the adjacent lands, the lands were still saturated with water, which could only be removed by field ditches, the lands having very little slope.

In the spring of 1886 a small field of cane, some twenty acres, was planted; also seventy-five acres of rice and fifty acres of corn. All these crops were unusually productive, an average of fifty bushels of both rice and corn being harvested per acre.

In the fall of 1886 and spring of 1887 the cane fields were increased to ninety acres.

In 1887 Mr. Hamilton Disston purchased one-half interest in the farm and furnished means to increase the acreage to 1,800 acres, all first-class muck, or reclaimed, land, and to erect the first sugar factory, as illustrated by cut No. 3. A small area of cane was harvested in 1887-8, yielding some 5,000 pounds of granulated sugar per acre. Most of the cane, however, was used for seed, there being 420 acres of cane on the farm in 1888-9, 100 acres Ratoon and 320 acres Plant cane. The illustrations No. 1 and 2 show this cane on the best drained (highest) land on the plantation taken where the muck is six to eight feet deep, this cane averaging sixty tons per acre, with 14 per cent Sucrose.

These photos were taken by O. Pierre Havens, of Jacksonville, in the winter of 1888-9.

A sugar mill with a capacity of 200 tons of cane per day (24 hours) was built. Some 90 acres were harvested the first year; the second year some 400 acres. None but first-class sugar was made. The yield averaged 35 tons of cane per acre (the maximum yield being 60 tons off the oldest, best drained cuts); the average sucrose



content was 14 per cent; the average available sugar was 8 per cent, or 160 pounds of granulated sugar per ton of cane, showing rather a poor result from the factory standpoint, the factory not having all the necessary modern economical devices. *The yield, however, some 5,000 pounds of sugar per acre, was superior to any American record up to that time.* During this time sugar sold at 3.25c to 3.75c per pound, at no time reaching 4 cents.

Results were so satisfactory that Mr. Disston proposed largely to increase the capital stock, and the area of the cane fields (then 600 acres).

He was largely influenced by the immense speculative interest in sugar production, aroused by the "bounty law" passed by Congress, paying 2c per pound to American sugars. Millions of dollars were invested in Louisiana cane sugar and Western beet sugar production. An era of extravagance was inaugurated in Louisiana and in the beet-producing regions of the West. The St. Cloud Plantation was reorganized as the "Florida Sugar Manufacturing Company" and capitalized at \$1,000,000, an expensive factory erected at a cost of \$350,000, and a large area of lands purchased—some 36,000 acres. While the cane fields were not increased materially—at no time was there to exceed 1,000 acres in cane while the factory had a capacity of not less than 3,500 acres per season. When this reorganization occurred the writer declined to join it, but sold his stock, believing, and as subsequent events proved, that the "bounty law" would be repealed by the next Congress and the extravagant investments in cane and beet sugar would result in bankruptcy to the investors. This did occur, as anticipated. In the meantime, a bond issue of \$1,000,000 was made to pay for the lands purchased.

A capitalization of \$2,000,000 to be taken care of by a cane field of some 800 to 1,000 acres, extravagantly managed by inexperienced men, ignorant to a large extent

of agriculture, and particularly of drainage and modern methods of cane culture and sugar manufacture. St. Cloud, however, was by no means an exception. Hundreds of similar wrecks occurred in Louisiana and in the West. Wrecks of immense cane and beet sugar ventures were common throughout the country. During the bounty period granulated sugar sold for from 6.50 to 7.40 cents per pound, with an added two cents bounty (see the U. S. Agricultural Reports for these years.) The extravagance of management, however, absorbed not only the market price, but the bounty also, and left a large deficit in addition. While economically managed, large dividends were made, with sugar selling at 3.75c per pound, with a factory by no means most modern and economical; with an up-to-date factory, provided with all modern economic devices, with the same quality of cane, with sugar selling at 6.50 and 7.40 cents per pound, and an additional bounty of 2c per pound paid by the Government, a disastrous failure resulted.

This was not peculiar to Florida nor St. Cloud, as the same condition prevailed in Louisiana and in the West, where wrecks of similar ventures were numerous. The failure at St. Cloud was not caused by climate, soil, or quality of cane, as no richer cane, nor larger tonnage is made in Cuba than was made at St. Cloud and South Port—in the same county—on reclaimed muck land, and is still being made on the same and similar lands in the same locality. The failure was caused:

*First*—By extravagance.

*Second*—By ignorance of proper methods of culture and manufacture and neglect of drainage.

*Third*—By want of proper business methods on the part of the company and its managers.

B. E. ROSE.

Tallahassee, April 1912.

## THE SWEET POTATO CROP.

—BY—

C. K. M'QUARRIE, *Assistant Superintendent, Farmers' Institute, University of Florida.*

The sweet potato crop holds an important place among the general farm crops of this State, being third in point of value (running a close race with cotton, which is second in the list). Its position is more important than cotton, as it is a maintenance crop and for the most part consumed at home and not subject to market fluctuations.

Because of its adaptability to all sections of the State, the possibilities of this crop, from a money-making standpoint, are great. The present yield could be largely increased by adopting improved methods of production. And if there is one crop more than any other that can be depended upon year in and year out with a large degree of certainty it is the sweet potato crop.

But to get maximum results and put this crop where it belongs as one of the best farm crops of the State, certain factors in crop production must be studied and neted upon. These are: Its place in crop rotation, soil preparation, the kind of fertilizer to be used, the quality of same, methods of application, planting, care of the crop when growing, the varieties best suited to the soil and to climatic and local conditions and methods of harvesting and care of the crop afterwards.

### PLACE IN CROP ROTATION.

The sweet potato crop in the general rotation should follow a crop that puts humus and fertility in the soil. Humus enables the soil to store moisture, increases its temperature, furnishes a certain amount of plant food,

retards the loss of fertility by leaching, stimulates chemical action, and fosters the bacterial life so essential to a large crop yield. Crops such as velvet beans, cowpeas, soy beans and heggarweed are ideal for this purpose, for they not only increases the fertility of the soil by their ability to collect the free nitrogen of the air and store it on their roots in the form of nodules, but the plowing under of the aftermath of these crops puts humus in the soil to keep the crop supplied with the needed moisture while it is growing.

Where any of these crops have been plowed under in the fall and a winter cover crop, such as rye or oats, grown on the land (which is an excellent plant for conservation of moisture and fertility during the winter months), and these crops again plowed under in the green state early in spring, there will be ideal soil conditions for a large crop of sweet potatoes. Some prefer to let the oat crop get to the dough stage and cut and cure it for hay and plow under the stubble. This is also an excellent method, unless in localities where it will be too late in the season before the oats are ready for cutting to be in time to plant the sweet potato crop.

#### PREPARATION OF THE SOIL

Plowing or breaking the land in the late fall for all spring-planted crops is the best method to pursue, for if we wait till spring the soil is apt to be too wet after the winter rains to do good work, and the vegetation and materials plowed under in the spring will not have time to rot and assimilate with the soil to form humus, and the soil will not have time to pack back and get into the mechanical condition necessary for success in crop production. Therefore we want to do this breaking in the fall. For this purpose a tool should be used capable of doing good work and plowing completely under all the vegetable

material on the top of the land. A disk or heavy turning plow should be used for this purpose, aiming each time to go a couple of inches or so deeper than the last breaking was done. On old land that has been some years in cultivation subsoiling can be profitably adopted. This subsoiling can be done with an ordinary scooter stock with a six-inch shovel for a plow, running right behind the breaking plow and going as deep as it is possible to go. This subsoiling opens and aerates the lower soil that is not advisable to turn on top or mix with the already made soil. It also helps to retain the moisture received from the rainfall, prevents, to a certain degree, surface washing during heavy rains, and enables the crop to draw on the lower moisture strata in the growing period when moisture is the main factor to a large yield. It also serves the purpose of soil aeration to a lower depth than the breaking plow can do, thus tending to promote the bacterial life of the soil on which crop production so much depends.

In cases where no winter cover crop is grown on fall-broken land, after every heavy rain a tool such as a weeder or harrow should be used, running lightly over the land and forming a dust mulch to prevent the rapid evaporation of moisture that occurs if a crust is allowed to remain long on the land. No deep running tool is wanted for this work.

#### FERTILIZER FOR THE CROP.

An important point connected with this crop is the kind of fertilizer used, and it is advisable to consider this from the plant-food standpoint and know the formula that is likely to give us best results. Some of the Experiment Stations of the South have given us definite information along this line, which, coupled with results obtained by a number of farmers in growing the crop, en-

ables us to suggest a formula that this crop will generally do well with. A favorite formula contains 3 per cent. of ammonia, 7 per cent phosphoric acid and about 8 per cent potash. And in this connection we want to know the raw materials that enter into the make-up of this formula. For instance, we know that cottonseed meal or castor pomace is not the best for the source of ammonia, because the use of these tends to give the crop soft rot and a poor keeping quality, and we also know that for the potash source we should not use any raw material with chlorine in it, such as muriate of potash or kainit, as the chlorine in them tends to give an inferior quality to the crop.

The raw material recommended for an ammoniate source are either tankage, sulphate of ammonia, or blood and bone; and for potash, sulphate or potash, or double sulphate of potash and magnesia.

The farmer who plants a large acreage of the crop can get the fertilizer manufacturers to compound for him any formula he wants and of any preferred materials, but the small grower has either to take what he can get on the local market or do his own mixing, which is quite easily done. To mix a ton of the formula given above and of the materials recommended, he would have to use about 900 pounds of blood and bone, or bone tankage, 800 pounds of phosphoric acid and 300 pounds of sulphate of potash.

#### HOW MUCH FERTILIZER PER ACRE.

Land that is in good mechanical condition with considerable humus in the soil will take care of more fertilizer to advantage than poor thin soil devoid of humus. The depth of plowing cuts quite a figure also along this line. A good rule to adopt and one that has been found satisfactory in practice is to use one hundred pounds per acre for the right kind of plant food or the formula ab-

ready mentioned, for every inch of depth that the land has been plowed. It is true economy to use enough fertilizer of the right kind to get the maximum yield with the least cost of production per bushel.

#### METHODS OF APPLICATION.

It is a well-known fact that the root system is the foundation on which a crop is made, and the methods of application of the fertilizer determine to a great extent the vigor and number of the feeding rootlets of a crop. Fertilizer applied in furrows, drills or hills tends to make the soil streaked or spotted in its fertility, consequently curtailing the root system because the roots of the crop are not apt to spread through all the soil as they would do if the fertility was uniformly distributed. Therefore it is recommended that, on all well-prepared soils plowed to a depth of six inches or more, the fertilizer be broadcasted on freshly prepared land and worked into the soil by means of harrow, weeder or cultivator, a few days previous to planting the crop. On soils deficient in humus, and plowed a few inches in depth, the application of the fertilizer had best be in furrows; but in such a case the quantity used must be small and the crop will be of a corresponding degree, thus making the cost more per bushel, for the labor required is the same in both cases.

#### PLANTING THE CROP.

Whenever the "draws" in the seed-bed are ready for setting out in the field, enough land should be prepared for the purpose by making it into beds about four feet from center to center. The height of these beds should be determined by the nature of the land. On rolling land, where there is ample drainage, these beds should not be more than twelve to fifteen inches above the level of the

ground and made with a well-rounded top, *not sharp*. On flat woods where drainage is deficient the beds should be made very high, say two to three, so as to take care of excessive rainfall in rainy weather, because the roots of the crop should not be in stagnant water at any time. The best tool for making the beds is a disk cultivator. The disks can be arranged at different angles and depths to make a far better bed and at considerably less cost than those made by a turning plow and afterwards smoothed off with a hoe, as is the general practice. It is not advisable to make more beds than are required at any one time, because a better stand is secured when draws or vines are planted on fresh-made beds, on account of the settling of the soil about them, than when plants are put on beds a few days or a week after they were made.

If draws are set out in April, the vines that we want for the main planting will be ready to be cut for this purpose in May. For it has been found that the cuttings, of the vines make a larger yield for table and market than where draws are used, and it is the usual practice just to plant sufficient draws to give plenty of vines for the main planting.

In the planting operation the vines should be cut to lengths of twelve or fifteen inches (we don't want them too long), and laid on top of the bed about fifteen inches apart with butts all one way. By using a forked stick for the purpose, we can insert them into the soil to a depth of four to six inches, always taking care to have the butt ends down. The practice of some growers of pushing the vines in the soil at the middle and leaving both ends sticking out cannot be generally recommended, as in that case the vine is ruptured and more than one joint will root, which tends to a lower yield than where only one joint roots, which is the case when the butt end is inserted.



If dry weather prevails at planting time and the soil is deficient in moisture, watering the plants immediately after setting them out is recommended. For this purpose some vessel with a spout on it (such as an old copper kettle) is best, pouring about half a pint of water in the hole where the plant is set out, taking care to run the wetted soil to the root of the plant. This should be done in the evening, and next morning a little dry soil should be thrown over these wet places to prevent the evaporation of that watering.

#### VARIETIES.

More than one hundred so-called varieties of sweet potatoes make up the list of what we have in the State. Many of these are really the same, but under different names in different localities.

In selecting a suitable variety two things should be kept in mind, and the most important in this respect is the market one is catering to, and another is the lateness or earliness of the variety. As a general proposition, an early variety does not give us the largest yield, and is not such a good keeper when stored as a later variety which matures thoroughly before harvesting. A variety in great demand for early summer shipping to Northern markets is the "Big Stem Jersey," but this variety is mostly confined to the central and south-central part of the State, where it is grown largely as a catch crop succeeding a winter truck crop. It is not in much demand in the Southern market because of its dry, mealy nature, the Southern markets calling for a soft sweet potato of the yam type. Among the favorites for domestic use and of medium earliness are the "Dooly Yam," the "Nancy Hall," and "Triumph." The "White Spanish" sometimes called the "Tar Heel" is the earliest we have, but the quality is inferior and is not in much demand

after other varieties come on the market. "Southern Queen" and early "Pumpkin Yam" are medium early varieties and are of excellent quality. "Dewey," "Yellow Bunch Yam," "Vineland" and "Hall's Golden" are also desirable types and are the latest ripening varieties for domestic use. These are good keepers when allowed to ripen and stored properly.

Sweet potatoes are also much used for stock feed and can be profitably grown for that purpose especially for hogs and dairy stock. They can also be used to advantage for horse and mule feed along with grain feeds. The stock-feeding varieties grow to a larger size and are much inferior in quality to those used for domestic purposes. Among the best known in this class are the "white" and the "purple" West Indian Yam, "Brazilian Yam," "Nigger Killer," "Hayti," "Spanish," "San Domingo," "Davis Enormous" and a number of others. Some of these do better in some sections than others, so that one has to consider and find out, if possible, the variety best suited to his soil, location and climatic conditions. This applies both to the domestic and to the stock-feed types.

#### CARE OF THE GROWING CROP.

Many of our native farmers think that the sweet potato crop does not require any cultivation. If it is planted on new land, little cultivation will be required, as grass and weeds are not apt to be much in evidence. Nevertheless, an occasional stirring of the soil, particularly in dry weather, is useful for the conservation of moisture and the aeration needed to produce a good crop.

On old land that has been several years in cultivation, grass and weeds will get quite rampant shortly after planting, particularly if a heavy application of fertilizer has been put on the crop. To keep such in check, the

cultivator must be used quite frequently until the vines completely cover the ground, when cultivation may cease, as by that time the young potatoes will be forming in the soil, and their growth would be interfered with if cultivation was continued any longer.

#### TOOLS TO USE.

The best tool for cultivating this crop that we know of is a two-horse disk cultivator with the disks set at a suitable angle at different depths, so as to run along the sides of the bed, scraping weeds and some soil into the water furrow in the operation. After the ground has been gone over in this way, the angles of the disks are reversed and rebedding is done, leaving the beds in their previous form. This work not only cleans up the weeds and grass, but aerates the soil and tends to a larger yield.

To protect the young plants from being either torn or covered in the operation, the fenders, with which all such tools are provided, have to be attached to the frame of the cultivator. These fenders have to be properly adjusted as to width and depth to give the best results. Later on when the vines begin running and interfere with the disks in their work, a home-made attachment with fingers on it to lift vines out of the way can be fastened to the cultivator and used to good advantage; for cultivation can be carried on much later than if this was not used.

#### DISK CULTIVATOR BETTER THAN PLOW.

On those farms where cultivators are not used, the general method practiced for keeping the weeds under control is to use a turning plow for barring off the beds, clearing the top by boeing, and then bedding back again. This takes more time, and is more expensive, because the plow will not cover more than a couple of acres in a day,

whereas the disk cultivator will clear at least 8 to 10 acres a day. Fenders to protect the young plants cannot be used on a plow, and in the rebedding operation a number of plants will be covered by soil, requiring an extra hand to uncover them. When the vines begin running, an extra hand is also required to rake the vines out of the way of the plow, thus adding fifteen to twenty per cent to the cost of producing the crop. The work will not be as well done as by the cultivator, for the raking of the vines out of the way of the plow and back again damages them and curtails the crop.

Care should always be exercised not to work the soil when it is too wet, or when the vines are wet with either dew or rain, for that tends to "scald" the leaves, and is detrimental to a good crop yield.

#### HARVESTING THE CROP.

The bulk of this crop is not generally harvested until the frost occurs. The field should then be gone over, and the vines cut from the crown of the hills by means of a sharp hoe or sickle. This operation prevents the decay in the frosted vines from being communicated to the potatoes, and so causing the soft rot which shows itself soon after the potatoes are dug. If we follow this method the potatoes can ripen in the ground before we dig them, and their keeping qualities will be improved.

In the digging operation, care should be exercised to prevent injury to the tubers by cuts, scratches, or bruises, which are another source of soft rot. Where a considerable acreage is to be harvested, it will be a point of economy to use a regular potato-digger. This works better and quicker, avoids injury, and ensures the getting of all the crop from the ground.

After the digging, the crop should be allowed to lie on the ground in rows for three or four days, so as to get

thoroughly dried and cured by the sun. It is as necessary to cure potatoes, both Irish and sweet, as it is to cure hay or forage.

#### STORING THE CROP.

How to store the sweet potato crop in such a manner as to ensure against loss by decay, is a matter that seriously concerns the farmers of the State. A considerable loss occurs in this crop every winter from preventable causes. The method of harvesting the crop are responsible for a large amount of this loss, and the methods of storing for most of the balance.

We have seldom, if ever, seen a successful sweet-potato house made by digging a hole in the ground and roofing in, or by imitating a smoke house; because both of these lack ventilation. A common practice is to make small conical piles about ten bushels each, and to cover them with soil and bark. As far as my observations goes, this method is frequently a failure, because the contents of these piles are not properly secured against rain, and are not properly ventilated. In my own practice I have found it best to store sweet potatoes in banks on the top of ground conveniently near to the barn or dwelling-house. A piece of ground running north and south, of the desired length, and about four feet wide, is levelled by means of a hoe or rake, and the potatoes are piled on this, about five feet deep, tapering to a sharp ridge. This makes a long V-shaped bank, and care is taken to have the sides with a smooth and uniform slope. After all the potatoes are piled in the bank, a good plan is to allow them to have a few days' exposure to the sun so as to become thoroughly dry, covering at night with sacks or hay to keep off the dew. Then the whole bank is covered two or three inches deep with some kind of hay, and over the hay a couple of inches of soil are thrown.

The hay absorbs the moisture that is given off by the potatoes during the sweating that occurs soon after the bank is entirely covered. The soil keeps the hay in place and protects against cold. The bank should be made water-tight by means of boards laid lengthwise, with lapped edges to shed rain; or a temporary frame of scantlings can be made over the bank, and shingles or tar-paper used to keep the potatoes dry.

If the crop is stored in this way, it is less likely to rot than with ordinary methods, and it can be held until late in spring, when prices run high.

## POULTRY RAISING.

—BY—

A. P. SPENCER, *Assistant in Extension, University of  
Florida, Gainesville.*

There are about 6,000,000 farms producing poultry in the United States, but comparatively few of these raise poultry otherwise than as a side issue. Several large poultry plants are operated, but their output is but a drop in the bucket in comparison with the whole amount of poultry products produced and consumed.

The average housekeeper on the farm looks to supply her table with eggs from her own poultry yard. At times she has abundance to spare; at other times her supply of fresh eggs is limited or cut off, and she depends on stored eggs or must purchase from a neighbor or grocer, the shortage usually occurring when prices are above the average.

This shortage may be overcome if there is a better understanding of the details of poultry raising and sufficient time given to carrying them out. Successful poultry raising requires some skill and experience backed up by economical management, constant attention and constant foresight.

The average hen lays about sixty eggs in a year. Only about half the eggs placed under hens or in incubators hatch, and many chicks that hatch do not live to a marketable age. These figures are only approximate, but those who have given attention to such matters will not doubt their approximate correctness.

This is not the best that can be done after allowing for natural environments, and considering what has been learnt from experimental work and using the artificial

methods devised expressly for making poultry raising more profitable and less subject to failure.

Poultry production for profit up to recently was viewed from three principal standpoints. First, production of eggs; second, production of meat; third, production of breeding stock. A new phase of the business has recently come to our attention in the production of day-old chicks for a special trade.

It matters little which phase of the business is undertaken, some vital principles must be adhered to more or less constantly or there will be little satisfaction and less profit.

In all cases it is well to start on a moderate scale. The inexperienced poultryman must get practical experience, some of which may be more or less costly. If the start is made on a small scale and well within the capacity and finances, if the methods are economical and business principles are applied, it is reasonable to expect a fair profit in return.

On the average Florida farm, poultry can be made profitable, and to do this it is important:

- (1) To secure good specimens of well-bred fowls from productive stock.
- (2) To feed regularly with a variety of feeds.
- (3) To house comfortably and keep free from lice and mites.
- (4) To furnish a constant supply of green feeds and fresh water.
- (5) To see that they get exercise daily.
- (6) To keep a careful supervision over them.

#### THE BIRDS TO SELECT.

Three types of poultry breeds lend themselves to the various methods of marketing.



## EGG OR MEDITERRANEAN BREEDS.

Of these the White Leghorn undoubtedly have the preference in Florida. The Brown Leghorn, Black Spanish and White Minorca have many admirers, and from the standpoint of eggs these breeds are unexcelled. They are poor sitters and nervous and require high fences to confine them.

## MEAT OR ASIATIC BREEDS.

Cochins, Langhans and Brahmas are distinctly meat breeds. They grow rapidly and make a satisfactory table fowl, and are usually inferior layers but good brooders.

## GENERAL PURPOSE BREEDS.

The American or intermediate types, such as Rhode Island Reds, Barred, White and Buff Rocks, Orpington and Wyandottes are best suited to the average farmer or market poultryman. They are quite generally used and are well suited to Florida conditions. These breeds are well established and breed true to color, with the exception of the Rhode Island Reds, which have a more recent origin, and it is often difficult to secure uniformity of color with them, but as a general utility fowl the Rhode Island Red is considered one of the best. Color markings are usually of secondary importance, although there is a preference for white or yellow-skinned fowls in the best markets.

It cannot be truthfully stated that any one or two breeds are better than all others under all conditions, but in selecting for general utility it is usually good policy to adopt one that is known to be productive under fair management.

## FEEDING.

Perhaps more attention has been given this phase of poultry raising than any other. Laying hens should be fed for two purposes only. First, to sustain the body, and, second, to produce eggs. When the body has been thoroughly nourished and additional food eaten there is a daily waste from some one or more causes if they fail to lay. If they are taking on an excessive amount of fat, some of the food is being assimilated for this purpose. If there is no increase in body weight, the food may be deficient in the necessary elements for egg production, or the fowls may not lay because of indigestion or old age. For these reasons it is almost impossible to prescribe for a non-laying flock unless all the particulars about that flock are known.

The daily ration should be fairly well balanced. If the flock is not yarded and their feed is obtained from the refuse of the stable lots, insects and worms, besides some table scraps, the ration will be fairly well balanced. Poultry confined will not get this variety of feed unless it is supplied from some other source.

A mixture of equal parts of corn, wheat, and oats is a good mixture, as a morning feed; four quarts is about sufficient for fifty hens. It is best to scatter the grain among litter to induce exercise. In the afternoon a mash feed (either dry or moist) is given. A good mash feed would be, equal parts of ground corn, oats and bran, and some animal food (fed from an open hopper). Meat, meat meal, and ground bone are good animal foods to use. For fowls not accustomed to meat meal, one-half pound per day is sufficient for twelve hens, since it has a laxative effect on the bowels and must be fed sparingly at first. Later when the fowls become accustomed to it, the amount may be increased to one pound per day. Linseed meal may be substituted in part, and is to be

recommended because of its lower cost and adding variety to the ration.

Hens should have a supply of protein (muscle and bone producing) as part of their daily ration with animal food forming a part of it. Fresh meat is best, the hens relish it better when cooked, and of course it can be kept sweet longer. Green cut bone is good, although some claim it unsafe on account of the possibility of introducing tuberculosis to which poultry are subject. For summer use, meat meal and meat scraps are suitable and readily accessible. In making up the mixture, let the animal food constitute from eight to ten per cent of the ration, the actual amount depending on the particular material used. Skimmed milk is a good source and it may be both added to the mash and placed where the fowls can drink it.

*Vegetable or green foods.* The value of green feed for poultry lies in its ability to aid the digestive system, while it also provides with some nourishment. It promotes good health and naturally more eggs. Green feeds should be supplied liberally; even poultry having the picking of the grass and weeds that grow during the winter in Florida are benefited by an additional supply of such vegetables as cabbage, kale, and dwarf essex rape.

Sprouted grains are generally used by northern poultry men with young chicks. They are also valuable because of a ferment called "diastase" they contain that aids digestion of starch. This substance is in sprouting oats, rye, barley, and potatoes.

*Fowls must have a constant supply of grit.* Grit is used by hens for masticating their food. The supply must be constant and frequently renewed and unless it is sharp digestion will be imperfect. Very often it is advisable to supply some grit even when the fowls have access to sandy yards, for if the sand is very fine, it is useless. Ground oyster shells or coarse sand are among the best forms.

*Fowls must have a dust bath.* A dust bath is more essential than is often considered. Hens must dust themselves to rid the body of a vermin and to cleanse it and remove the scurf that is constantly exuding from the skin. The dust bath should be frequently renewed and might contain a small quantity of lime, or preferably wood ashes.

#### WATER A CONSTANT NECESSITY

Water constitutes 65 per cent of the egg and about 55 per cent of the hen's body, and unless the supply is sufficient the hens will suffer for want of it. The water supplied in green feed is not nearly sufficient. Fifty laying hens will drink 6 to 10 quarts daily, and even more in hot weather if they are producing a good number of eggs each day.

Some simple automatic drinking fountains sold by dealers of poultry supplies are convenient for supplying clean water, as there is a probability of the water becoming polluted if it is supplied to a large flock from open vessels.

Materials for feeding must be fresh and free from mold; musty corn, buckwheat, and bran are inducive of digestive disorders. Kaffir corn is an exceptionally good poultry feed when clean, but unless special care is taken, it is subject to mould during the summer rains in Florida and should be examined before being fed.

It is important to keep the appetite good. A light grain feed or "scratch" in the morning, a mash feed at noon (either dry or wet) and a liberal grain feed at night is recommended by good poultrymen. The crops should be full when the hens go to roost. This is especially emphasized in northern states to induce warmth during the night and is less true perhaps in Florida.

## BROODY HENS.

Some breeds have a greater tendency to broodiness than others. The lighter egg breeds are less broody than the heavier meat breeds. Broodiness is a natural condition coming at the end of a continuous laying period. All hens have periods for laying and periods for resting. Whatever may be the cause, broodiness can be most effectively overcome by good care and regular feeding, to build up bodily tissue and to get the hen in a good condition for laying again. To starve broody hens is to increase this tendency. Ducking in cold water or other abuses most commonly practiced do well to break up the broodiness.

## POULTRY HOUSES.

A high dry location for the buildings is always preferable to a poorly drained one and as yards running out from the poultry houses that can be cultivated and sown to green crops are convenient, this consideration should not be overlooked. Excessive moisture brings trouble every time. Good drainage and good sanitary conditions mean much to a flock of poultry, yet there is hardly a location however flat, but what local conditions can be greatly improved by raising the level of the ground on which the house is to be constructed, twelve to fifteen inches with a few loads of light soil, thereby making it on a good location.

The open house is always to be recommended in Florida. There is no necessity for expensive structures, but only for comfort, sanitation and convenience. Small flocks usually lay best; 60 to 70 birds in a flock will give a higher average than when greater numbers are kept together, although under certain conditions several hundred may be kept together profitably. In the first case a

greater number of eggs per hen are produced, while the larger flocks can be handled with less labor per hen.

Four to six square feet of floor space is sufficient for each bird. Overcrowding is injurious. With one or two sides open, or in our coldest weather covered with canvas, a free circulation of air surrounds the hens and prevents an excessive accumulation of moisture or foul air. Any structure so built as to permit drafts on the birds is faulty. The air should be cool and fresh, but drafts are responsible for much trouble. Poultry often prefer a tree for roosting, as they object to being housed in drafty quarters. A tree gives better protection than a drafty house, but not nearly as good protection as a properly ventilated house. A concrete floor in Florida is to be recommended though not absolutely necessary. The house can be more thoroughly cleaned and the birds better protected from weasels, skunks and rats, when there is a solid floor and wire netting to cover the open slides, with doors made to fit.

The roosts should be so arranged that they can be quickly moved, and all on the same level. About thirteen inches below the roosts should be boards to collect the droppings. These boards should be tongued and grooved, and closely fitted, leaving no cracks or holes to collect dirt. Clean the dropping board every day and pour a little kerosene oil over the roosts once a week. Sprinkle lime around the roosts each day and there will be little trouble with bad odors and vermin.

Darken the laying boxes, as a hen prefers a concealed corner for the nest. Clean the nest boxes frequently. Dirty nests are breeding places for fleas, mites, and lice. Eggs absorb disagreeable odors rapidly, and the quality of the egg will be injured by lying from twelve to thirty-six hours in a dirty nest. Remember always that sanitation and a free circulation of fresh air are indispensable to successful poultry raising.

Never permit sickly or weak birds to remain in the flock. If unthrifty ones are found, remove them at once, and if the sickness seems to linger, it is usually best to destroy them and burn the carcasses. Select the breeding yards. Without constitutional vigor and good health we stock from the thriftiest and most active birds of the cannot expect good returns.

Pullets are usually the best layers, but their eggs should not be used for hatching. One and two-year old hens are best to select when eggs for incubation are wanted. Keep the entire flock under three years old and weed out the non-producers immediately they are found in the flock.

#### RAISING CHICKS.

Under average farm conditions most of the chicks will be hatched and mothered by hens, although incubators are rapidly coming into general use.

Hens that steal away to nest usually, but not always, succeed in raising a good brood, although often too late in the season, so we cannot count on that method for raising our best chicks. The hens that lay early are the ones that hatch the early chicks. Furthermore, the early hatched pullets do the laying during November, December, and January, so that in order to have early layers one must prepare at least twelve months in advance. Early broilers bring the fancy prices, so that the success in both production and getting the best market is to be two months in advance of those who furnish the bulk and general supply of eggs and meat.

The egg supply is irregular and is always greatest during March, April, May and June, so that the price per dozen naturally declines during these months. During the remaining eight months the retail market depends

more or less on the eggs stored during the laying season and cannot always supply strictly fresh eggs.

The poultry man who by proper methods has been able to get his greatest supply of eggs during the months of shortage or October, November, December, and January, gets the cream of the prices and when the market is declining these hens are raising chicks for the early market or for his laying stock the coming year. There is a special trade to be developed in every city in the South for strictly fresh eggs and well fattened nicely marketed, dressed poultry. The product must be uniform and strictly fresh and placed on the market in attractive packages. There is only a small profit in poultry raising if the product is to go into the ordinary channel of trade, the grocery and country store, when the market is fairly well supplied. But there is a liberal profit if the special trade is catered to.

The Doan Carton Company of St. Louis, Mo., manufactures egg cartons that will meet the demand of such a trade. Each carton will hold one dozen eggs, and the cartons are so shaped that thirty of these will exactly fill an ordinary 30-dozen egg crate. Immediately the eggs are gathered, sorted and wiped, they are placed in the carton, the lid is sealed and the date stamped on the package. The carton is made of a good quality cardboard, each egg separated from the other, so that there is little danger of breakage. The eggs are not handled again until they are finally taken out by the consumer. Such a package, convenient in size, sealed and guaranteed finds a ready sale at a higher price than the regular market offers. The carton bears the name of the producer with signature over guarantee, and the consumer finding the eggs according to guarantee wants the particular product again. The price of the cartons is \$6.50 per thousand if ordered in 1000 lots or less than three-quarters of a cent each.



## DAY-OLD CHICKS.

Another phase of the poultry business that has only recently attracted attention is the selling of day-old chicks. In some instances the business has grown to large proportions. One firm offers day-old chicks at 10 cents each, also offers a paper brooder that is packed and sent in the same shipment at \$2.00. Hence with an expenditure of \$12 the purchaser may start in the poultry business and under favorable conditions this would be a fairly satisfactory way to begin. The development of such chicks will of course depend largely on how they are cared for and the vigor of the stock. A public hatchery in connection with an established poultry plant would undoubtedly find some business. In these hatcheries the eggs are incubated at a stated price per hundred, or eggs may be exchanged for chicks.

## INDIAN RUNNER DUCKS.

—BY—

A. P. SPENCER, *Assistant in Extension University of  
Florida, Gainesville.*

Indian Runner Ducks have received attention from many people during the past five years. Their hardiness and their egg-laying capability recommend them. From 200 to 250 eggs a bird is not an uncommon yearly average, when the flock is properly handled. The eggs are readily accepted in our markets in place of hen eggs. Bakeries find a ready use for the eggs, and the claim is made that two of these duck eggs are equal in food value and for cooking purposes to three hen eggs.

Unlike hens, the egg production of the Indian Runners does not diminish immediately after the second year. Even up to seven or eight years they retain their normal egg-laying powers. They are only slightly subject to diseases, and parasites are seldom, if ever, found to trouble them. These ducks are wild-natured, and have little regard for a nest, dropping their eggs in any convenient place, frequently in the water or mud. It is best to keep them in yards. Then the eggs can all be gathered, and, with the better attention they receive, they lay better, the ducklings grow faster, and being less frequently disturbed by strangers they are tamer. A pond is much enjoyed by them, but is not a necessity. In fact, some people claim that the egg-production is greater without any water for swimming. Nevertheless, the ducks must have an abundance of fresh water for drinking purposes, and this especially must never be neglected.

Indian Runners, like all other live stock, require regular feeding. A meal three times a day is advocated during the laying season, and twice a day when moulting. The

feed may not materially differ from a suitable ration for hens, but as the duck utilizes less grit, it is better when moistened or made into a mash.

Indian Runner ducks are very poor sitters, so that the hatching must be done by hens or in incubators. One of the greatest hindrances to good hatches in incubators is the want of moisture during incubation, as these machines are built for hatching hen eggs, and duck eggs require more moisture. Additional moisture must be supplied for a successful hatch. Even when hatched by hens, it is advisable to moisten the eggs once a week, and twice during the last week of hatching.

The eggs are usually fertile if the flocks are properly managed. Thirty or forty in a flock is large enough, with one drake to every six ducks. An 80 or 85 per cent. hatch may be expected under good conditions. If the eggs are to be bought better hatches are usually secured from flocks of sufficient size to give quantities of fresh eggs for shipment each day. While they ship fairly well, their hatching qualities (as in the case with hen eggs) are likely to be injured by long shipment or too much jolting around. So it is preferable to secure the eggs from near home when possible.

At present, we have two varieties of Indian Runners although not particularly distinct—the dark fawn and the light fawn. The American standard describes the perfect female specimen as light fawn.

There seems no claim to any superior egg production in the light-fawn variety. On the other hand, the dark fawn is said to produce a whiter egg without the greenish tinge that more closely resembles a hen egg, and is more acceptable for table use.

Ducklings up to three weeks old are sensitive to cold and wet. Getting their feet into very cold water or exposure to a cold rain is almost sure to kill many. Up to five or six weeks of age, they need a good shelter with a

dry floor. After that they will require little or no shelter in Florida, and if well fed will begin laying when four and a half to six months of age.

Indian Runner ducks have many things to recommend them. They are not bothered with lice or vermin, no roup, no scaly legs, very little housing, and hawks do not molest them; but if they have access to a Florida pond, there is a danger from loss by the large turtles that are quite numerous in most sink holes, streams and ponds.

In addition to the demand for eggs, there is a growing demand for the meat, and while these ducks are not as heavy and plump as some other breeds, if they have been well cared for and kept growing, they make nice roasters, fryers and broilers at an early age.

#### DUCKS AND CHICKS MUST BE KEPT SEPARATE.

It is not a good plan to yard ducks and chickens together. Ducks are naturally good feeders and greedy and will get the most of the feed, and as they enjoy getting into the drinking water, will keep the drinking vessels in a dirty condition. Separate yards are best.

Indian Runner Ducks, like chickens, can be made profitable if they are properly managed. There is sufficient waste on the average farm to supply a good portion of the necessary feed, and while the ducks can be handled as a side issue on the farm, they will not give profitable returns if neglected.

## IMPROVING ACID SOILS.

—BY—

A. W. BLAIR, *Chemist Agricultural Experiment Station.*

The soils in many sections of Florida are acid (sour), which is unfavorable for the best development of many crops. Soils that are low and wet, especially muck soils, are likely to be acid. It is generally safe to assume that our pine-land soils are more or less acid if there is no indication of phosphate rock, limestone, or marl, at or near the surface. Hammock soils may also be acid, though in some cases the hammocks have a layer of marl a little below the surface.

### CAUSES OF ACIDITY.

1. Alkaline materials, such as potash, soda, lime and magnesia, which can neutralize or counteract acids, have to a large extent, been washed out of our soils by the action of drainage waters. (The State Geologist, in Bulletin No. 1, of the Geological Survey, stated that dissolved material is being carried into the sea through the Silver Springs at the rate of about 600 tons per day.) In this dissolved matter, carbonate of lime greatly predominates.

2. Organic matter, such as grass, weeds, or stalks, decays in the soil with the formation of organic acids, which on account of their slow solubility tend to accumulate in soils not well supplied with alkaline materials like lime.

3. Certain fertilizing materials, sulphate of ammonia in particular, tend to increase the acidity of soils that are naturally deficient in alkaline materials, owing to the

plants using the ammonia to a greater extent than they do the sulphuric acid.

#### CORRECTIVES.

Alkaline materials generally, will counteract or neutralize any acid. In improving an acid soil, the aim should be to get an alkaline material that is cheap and that can be easily handled. To a large extent, lime in its different forms fulfills these requirements.

Carbonate of lime is the form that occurs naturally. It is found as crystallized limestone or marble, as massive limestone rock, as marl and as shells. It also occurs in certain soils in a newly divided state as the result of the decomposition of some of the above named materials. Example of such soils are found in the Bluegrass regions of Kentucky, and Southwest Virginia. Carbonate of lime, in any form, if ground fine and worked into an acid soil in sufficient quantities, will correct the sourness. It will not take effect as rapidly as quick-lime, nor is it as concentrated. It should, however, be much cheaper. One hundred pounds of pure quick-lime are equivalent to 179 pounds of pure limestone; but, because of impurities, it would perhaps be best to take 200 pounds of carbonate of lime, in the form of ground limestone or ground shells, as the equivalent of 100 pounds of pure quick-lime.

Slaked Lime (hydrated lime) is made by slaking quick lime with just enough water to convert it into a fine powder. One hundred and thirty-two pounds of slaked lime prepared in this way are equivalent to 100 pounds of pure quick lime.

Unbleached hardwood ashes contain about 25 to 30 per cent. of lime in addition to 4 to 6 per cent. of potash, and when they can be had at a reasonable price they may be used with profit on acid soils.

Basic, or Thomas, Slag contains about 40 per cent. of

lime in addition to 17 or 18 per cent. of phosphoric acid, and if a moderate application of lime is needed along with a heavy application of phosphoric acid, this may be used. In our experiments with pineapples, basic slag has given good results.

#### APPLICATION.

If ground limestone or shells are used, and the soil is found to be highly acid (by testing with litmus paper), two tons per acre once in two or three years will not be excessive. If the soil is only slightly acid, one ton per acre may suffice. Only half the amount need be applied if quick-lime is used. Old, thoroughly air-slaked, lime may be used in about the same amount as ground limestone.

Lime may be applied at almost any time, though it would perhaps be better to apply it during the late winter or early spring, so that it may be thoroughly worked into the soil before the rainy season sets in. If fertilizers containing sulphate of ammonia are used, it would be better to apply the lime one month before or one month after the fertilizer application.

#### CROPS BENEFITTED BY LIME.

Most vegetable and fruit crops are benefited by the use of the lime where there is a tendency to acidity of the soil. It has, however, been shown that watermelons do best on an acid soil. It has also been shown that lime makes the conditions more favorable for the development of scab on the Irish potato.

With celery, lettuce, cabbage, citrus fruits, hay and forage crops, it may be used liberally.

## COWPEAS FOR HAY AND FOR SOIL BUILDING

—BY—

C. K. McQUARRIE, *Assistant Superintendent Farmers' Institutes, Gainesville, Fla., March 27, 1912.*

Our system of agriculture in this state (and in the South generally) has paid too little attention to growing legume crops as soil improvers. The farmer has thus been compelled to make large outlays for commercial fertilizers, which really never build the soil to the point of increased crop yields annually. We have been neglecting one of the most important methods of soil building known to agriculture. One of the best of the legume family for this purpose is the cowpea, and it is safe to say that no one crop known can add more to our agricultural wealth. Hay of the best quality can be made from it, and nearly four times as high in digestible protein as timothy hay. Its power to collect the free nitrogen of the air and store it in the form of nodules on the roots, thus increasing soil fertility, enables the farmer to grow succeeding crops without expensive nitrogenous fertilizers.

### PLANTING COWPEAS.

To make the best of the cowpea crop there are two distinct periods in which it should be planted to enable the farmer to get hay of good quality. The first planting should be done as early in spring as possible so as to have the crop cut and cured for hay before the rainy season occurs. The other planting should be done in July, (or early in August), so as to have the crop come off in the fall when dry weather prevails.



## VARIETIES TO PLANT.

On land where a winter crop that depletes the soil has been grown, such as cabbage, rape, or any of the small grains, a good plan for soil recuperation is to grow a legume crop immediately thereafter. The cowpea fits in there just right, and by making the crop into hay, the land will be in good condition to bear a profitable fall crop of some kind suitable to the soil and system of farm management. The variety of seed to be used should be carefully considered, for while there are upwards of fifty distinct types of the cowpea, there are very few that are suitable for early planting. Another point for consideration is the immunity of the variety we use to root-knot and wilt. On land where the root-knot is known to prevail, cowpeas of any variety are subject to it, and in that case we had better use the velvet or Lyon beans for a legume crop. There are two varieties of cowpeas that are known to be more resistant to root-knot than others, the Iron and Brabham, and they are desirable types for hay-making purposes.

## PREPARING FOR COWPEAS.

The land for cowpeas should be well prepared by thorough plowing and pulverization of the soil. The success of any crop depends a good deal on the seed-bed prepared for it. An application of about 400 pounds per acre of acid phosphate should be broadcasted and harrowed in before planting the seed. On soil that is in a good mechanical condition it will be advisable to sow the seed "broadcast," using about seven pecks to the acre and using a drill for the purpose. If no drill is available, the seed can be sown by hand and worked into the soil with a cultivator, smoothing the surface with a harrow or weeder. On thin soil it is advisable to sow in drills about

thirty inches apart and cultivate the growing crops several times. In that case about five pecks of seed per acre will be sufficient.

#### COWPEA MIXTURES.

Some of our farmers get excellent results from cowpea mixtures; that is, sowing other seeds with the cowpeas. This practice is generally recommended for the purpose of easier curing of the hay, as the mixture being of different texture cures more readily than if of one kind. A mixture that is very popular is sorghum and cowpeas. The Early Amber sorghum is the best, as its growing period comes near that of the cowpeas. If both are sown at the same time, five pecks of cowpeas and two pecks of sorghum broadcasted or drilled in is sufficient for an acre.

Cowpeas and German millet are another good combination, for the period of growth of the millet and the earlier varieties of cowpeas correspond sufficiently to make the product desirable, and the millet aids considerably in curing the hay. Cowpeas and soy beans are also a good combination, using the larger varieties of the soy bean, such as the Mammoth Yellow, and the slower growing varieties of cowpeas, such as the Clay and the Whippoorwill.

On some of the older fields of the state in the northern and western portion, Johnson grass has become more or less a pest. In fields where it abounds, cowpeas can be disked on the land at the rate of six to seven pecks per acre. The disking of the Johnson grass roots tends to a better stand of grass, and the peas mixed with it makes excellent hay. If the seed is planted in early April, the hay can be cut in about sixty to seventy days, and will be one of the best hays it is possible to get. This method of treating Johnson grass lands solves a difficult problem, as

you cannot grow a cultivated crop successfully where it abounds.

#### CURING THE CROP.

To get the best quality of hay the cowpea crop must not be allowed to get too ripe. At the blooming stage all the nutriment is in the plant, when it starts to make the seed to perpetuate its kind. The best time to cut cowpeas for hay is when the first pods are in the snap stage. As this hay requires careful handling it should not be cut when wet with either rain or dew. Cut in the forenoon, and as soon as wilted rake it into windrows and put it in small cocks the same afternoon. Hay-cock covers are useful if unfavorable weather prevails, and they will then repay their cost several times over. They can be made from seventy-two-inch muslin, cut into squares, soaked in raw linseed oil, and wrung dry. They should have string loops on the corners, so as to fasten them to the cocks by wooden pins. Very thin muslin is best, for if thick muslin is used it causes the hay to sweat, and is no more effective in shedding rain.

Next day open up these cocks in a loose manner, exposing the hay to the sun as little as possible, or the shedding of the leaves is apt to occur. Test the hay by twisting a bunch in the hand. If no moisture shows haul it to the barn. It will undergo a sweating process there, but that will only make it the more palatable, and better cured. It will overcome the sweat, all right, if left alone, and when it cools off will make a superior grade of hay.

The feeding value of cowpea hay and of its mixtures has long been recognized as of a high order, the hay being equal in protein content to the best bran, and high in carbohydrates. In dairy feeding, well-cured cowpea hay, cut at the right stage, is equal, pound for pound, to the ordinary bran used for feeding.

## WHITEFLY CONTROL.

—BY—

E. W. BERGER, PH.D., *Entomologist Agricultural Experiment Station.*

It is important that the citrus grower whose trees are infested or threatened with infestation by whitefly, should have at hand the necessary information which will enable him to initiate and conduct repressive measures to the best advantage. This bulletin is an endeavor to bring together the essential facts of whitefly control in a brief form. The whitefly may be controlled, though it is almost impossible to eradicate it. To control this pest is to keep it in check sufficiently for the trees to continue to bear clean fruit.

### HOW THE WHITEFLY INJURES TREES.

Badly infested citrus trees usually bear but a small amount of fruit, and what is borne is insipid and covered with sooty mold. The direct injury done to the trees consists in the loss of the sap which the insects suck at the rate of more than 15 pounds per month for each million of whitefly larvae. Indirectly the trees are injured by the sooty mold which covers the leaves and fruit. This sooty mold is a black fungus which develops in the honeydew, a sugary excretion ejected by all stages of the whitefly. This mold is itself injurious to the trees, because by shutting off some of the sunlight it interferes with the elaboration of food materials in the leaves and also retards the ripening of the fruit. Tests with iodine solution show that the parts of leaves covered with sooty mold produce less starch than the parts not covered.

## SUMMARY OF LIFE HISTORY.

The young of the citrus whitefly (sometimes incorrectly called eggs) are scale-like, and live on the under surfaces of the leaves. They pass through five stages of development, increasing from about one-eightieth of an inch to about one-eighteenth of an inch in length. The sixth stage, or final one, is the adult winged whitefly. The first four stages are spoken of as the first, second, third and fourth larval stages; and the fifth stage, the transformation stage from which the winged whitefly emerges, is called the pupa.

The best time to spread the whitefly-destroying fungi or to spray with contact insecticides is when these insects are mostly in the first three larval stages, or while they are still in the thin, flat condition of the fourth stage. (For a detailed discussion, read what is said under the heading of "Experiments in Spraying" on a later page.) Those in the thickened condition of the fourth or in the pupal stage, are less easily killed, requiring a stronger insecticide. The eggs of the whitefly cannot be destroyed by ordinary insecticides, and it is useless to spray the winged adults. The whitefly begins its larval development about 10 days or two weeks after the swarming periods in spring, summer, and fall. In other words, the eggs hatch in 10 to 14 days, and there are three broods of larvae. The spring brood of adults is definitely separated in time from the summer brood, the intervening period being occupied by the spring brood of larvae, which may be expected in March, April or May, according to season and locality. The summer brood and the late to early fall brood are not so definitely separated as the spring and summer broods of adults, because during the warm weather the adults are emerging nearly all the time; but large numbers of larvae are present during parts of July and August. The late summer to early fall brood is again separated from the next spring brood by nearly the whole

of the fall, the whole of the winter, and sometimes a part of the spring.

#### METHODS OF CONTROL.

There are three methods of control—the fungus diseases, spraying with insecticides, and fumigation.

#### THE FUNGUS DISEASES.

It is a well-established fact, but not a widely known one, that insects are subject to diseases as well as other animals and man. Among the principal agents responsible for the diseases of insects are certain parasitic fungi, and the whitefly, fortunately for us, is subject to attack by at least six of them. These are the red fungus (*Aschersonia aleyrodinis*) yellow fungus (*Aschersonia flavocitrina*), brown fungus (*Aegerita icbbri* Fawcett), cinnamon fungus (*Verticillium heterocladium*), white-fringe fungus (*Microcera* sp.), and occasionally a species of *Sporotrichum* related to the chinching fungus. These are all parasites of the larvae of whitefly, except the last one, which has occasionally been found infesting dead adult whiteflies, and presumably had caused their death.

As it is not within the scope of this paper to fully discuss each of these fungi, the red *Aschersonia* will alone be treated in some detail as a typical fungus, while brief statements with regard to the others will follow.

#### THE RED FUNGUS.

This important fungus, the red *Aschersonia*, has given satisfactory results in localities where the summer rains were normal, or where the trees were in good condition generally, the fungus could not always be depended upon to check the whitefly or to bring the trees back into good condition.

HELPING THE FUNGUS.—By diligent effort at spreading the fungus, especially during periods of rain, some relief can be obtained even under otherwise adverse conditions, if these be not extreme. In the grove of Mr. W. E. Heathcote, of St. Petersburg, Florida, into which this fungus had been introduced the previous year, and in which it was not thriving especially well and was giving only inadequate relief, a single spraying of the fungus spores was made in August, 1908, into 6 trees, and the entomologist counted, as a result, something like 10 times the amount of fungus in these trees that was found in those on each side. Ten times as much fungus, of course, implies ten times as many whitefly larvae killed, and indicates that, in many instances, diligent application of the fungus spores would give results more than repaying the time and money spent. Introductions of fungus should be thoroughly made, and if necessary repeated several times during the period of summer rains. We must not expect the fungus to do all the work unaided, but must help it destroy the whitefly by spreading it at the best time.

#### EXPERIMENTS IN SPREADING FUNGUS.

In this connection the writer desires to refer to the results produced by fungus in several groves into which it was introduced artificially. The first of these is the R. S. Sheldon grove at New Smyrna. The first introduction of the red fungus (red *Aschersonia*) in this grove was made by spraying spores under the writer's directions in October, 1906. A very small amount of fungus developed that fall, but it spread well during the next summer and no more was introduced before 1908. During the spring of the latter year some fungus was distributed by pinning leaves. On August 22, 1908, the writer sprayed spores of the red fungus into a few isolated trees near the Sheldon

house. But little, if any, fungus had developed in these trees previously and none had been introduced. By September 13, 66 per cent. of the larvae counted upon seven leaves, selected from some collected by Mr. Sheldon from the trees sprayed August 22, were infected by the fungus and dead. This happened in less than one month. The empty pupa cases were counted as live larvae in making the calculations. Following these excellent results, Mr. Sheldon continued to spread fungus by spraying the spores during the rest of September. Notes upon the grove were again taken on April 2, 1909, as follows:

Grove has been practically cleaned of whitefly. There has been fungus by the bushel, and other people have been collecting it for their use. Fungus is now becoming much weathered and is peeling off, but there is still plenty. Grove has a fine new growth and many trees have set a good crop. Perhaps one-tenth as many adults on new growth as in other groves in town where no fungus was applied. North third of grove has more adult whiteflies because it is opposite a badly infested grove that was not treated.

Considering the fact that this grove was not isolated but was exposed to reinfestation, the results must be considered very satisfactory. The whitefly was brought under control in just about two years. On the other hand, the writer now believes that the same results might have been attained in less than one year if the first spreading of fungus had been made during the period of summer rains. In fact, it appears that the work might have been accomplished in something like a month if we had spread fungus through the whole grove in August, 1908, as was done on the few trees referred to above.

The first part of the work was an experiment designed to give us accurate data as to the rapidity with which the fungus spreads under those circumstances, and the control of the whitefly in the grove as a whole was a secondary matter.

D—C. A.



On July 9, 1910, Mr. Sheldon kindly furnished the following data. The crop of fruit for 1909 was abundant, of good quality, and clean. There were but few whiteflies in 1909 and very little sooty mold. Whitefly considerable in 1910 but so far very little sooty mold. Red fungus was spread in 1909, but so far none in 1910, because fungus is scarce. No other repressive measures have been taken.

On December 22, 1909, the writer visited the 6-acre orange and pomelo grove of Mrs. A. P. Gunther, at Pier-son, and made the following notes:

The larvae were in the flat condition of fourth stage and older. Perhaps average of one alive per leaf. The first trees to become covered with sooty mold were observed in summer of 1907. Considerable numbers of larvae dead from unknown cause. Examination lasted one hour. Mr. E. Gunther says fall brood of adults not nearly so large as spring brood. Very good spread of red fungus (*Aschersonia*). Dozens to hundreds of pustules per leaf. The fungus was first introduced by Mr. Frank Stirling, of De-Land, early in the season; several introductions were made later. Trees look very healthy, thrifty and good color. Good crop last year. Tangerines and pomelos bearing a small crop this year. Oranges about one-half crop; some fruit covered with sooty mold and required washing.

The results in this grove appeared to be satisfactory in so far as the whitefly was concerned, and but little, if any, better results could have been obtained by any other method under the same conditions of exposure to reinfestation. This grove appears to be an instance in which diligent spreading of the fungus, aided by the "unknown cause" referred to in the notes, reduced the whitefly to a condition of comparatively little importance in one season.

Other illustrations of the effectiveness of introducing and spreading the fungi artificially under favorable conditions could be given. It is not the writer's wish, however, to make the fungi appear as a panacea for the whitefly, since their usefulness may be greatly limited in dry

localities and during periods of drought. It appears desirable, however, to briefly report upon the fungus work of Mr. Frank Stirling, of DeLand.

During 1908 Mr. Frank Stirling, of DeLand, began to spray fungus spores on an extensive scale. That year he treated between eight and nine thousand trees, in and near DeLand. During the spring and summer of 1909, with one or two helpers, he sprayed fungus spores into 127,500 trees. That is, he made 127,500 sprayings, many trees being sprayed many times. This spraying was mainly of the red fungus, but some yellow and some brown fungi were also used. The best results were had with the red fungus, but the brown did well later in the season. The yellow fungus (*Aschersonia*), Mr. Stirling says, is a "hustler" for the clondy-winged species of whitefly. Groves belonging to 58 owners were sprayed at a contract price of 2 cents per tree. This spring and summer (1910) Mr. Stirling is continuing to spray fungus spores. It will thus be seen that the method of spreading fungus as directed by the Experiment Station is receiving a most thorough test.

The entomologist has had occasion to examine personally only two of the groves treated by Mr. Stirling during 1909. These are the Gunther grove at Pierson, referred to on a former page, and the Temple groves at Winter Park. The results in Mr. Temple's groves appear to be about equal to two good sprayings with insecticides, but at less cost. Two sprayings in 1909, with fungus, one in May and one in July, cost 4 cents per tree; to have sprayed with insecticides would have cost 25 to 30 cents per tree. Mr. Stirling is again treating Mr. Temple's trees this season. On April 21, 1910, Mr. Stirling said that in the Stetson groves at DeLand, some of which were sprayed five times with fungus during the season of 1909, the whitefly was held in check and kept from spreading;

and had not fungus been spread, one-third of the fruit would have been covered with sooty mold.

**KEEPING TREES THRIFTY.**—It should be added here that proper fertilizing and cultivation of the trees is important, since a thrifty tree full of healthy foliage presents conditions favorable for the growth of the parasitic fungi of the whitefly, and, of course, can better withstand the attacks of insects. Irrigation would also frequently benefit the trees and favor the fungus parasites of whitefly and of scales.

#### INTRODUCING THE RED FUNGUS.

In order to start a growth of the red *Aschersonia*, it is only necessary to spray a mixture of the fungus spores in water on to the whitefly larvae in the infested trees. The spores of the fungus are produced in enormous numbers in the red elevations or pustules covering the dead larvae. They vary considerably in size, and 13,600,000 to as many as 52,000,000 could be arranged, one layer thick, upon the surface of a square inch. About 40 pustules to a pint of water have given good results. More can be used, or less, if fungus is scarce. It is not necessary to allow the leaves with fungus to soak longer than 5 to 10 minutes, but a longer time does no harm, and the mixture of spores and water may even be allowed to stand for 12 to 14 hours without injury. The mixture of spores and water should be strained through coarse cheese cloth or a fine wire sieve in order to remove all particles liable to clog the pump. Mixtures of fungus spores and water should not be allowed to stand in copper or brass pumps or vessels. It is best to avoid copper and brass vessels altogether, since the copper may injure the spores. Growths of fungus can generally be observed with the unaided eye in about three weeks after spraying the spores. The most successful introductions of the red

*Aschersonia* have been made during periods of rain at a time when the whitefly larvae were young. Thus one of the most luxuriant growths of the Red *Aschersonia* that the writer succeeded in getting was at DeLand during a period of rain in April, 1908, at which time also the larvae of the spring brood were in the early stage of development and very susceptible to infection by fungus. Generally speaking, the period of summer rains is the most certain time to spread fungus and to introduce it into new places. Seed fungus can generally be obtained from whitefly-infested groves into which the fungi have been previously introduced or in which they occur naturally. Since the fungi do not spread during the winter, but are nearly dormant, seed fungus is sometimes scarce during the spring months, but some can generally be obtained. By midsummer a crop of fungus will have matured upon the spring brood of whitefly larvae so that fungus is then abundant. One should not attempt to introduce fungus after the period of summer rains is over, unless it is desired to spray the spores when seed fungus is most plentiful, preparatory to having an early start when spring opens as late as October, November and December, and while but a meager infection resulted, this spread rapidly during the following spring and summer, as soon as sufficient moisture and warmth were present. The data and complete details of experiments will not be needed here since they were published in Bulletin 97, page 48; in the Annual Report for 1907, page xxxii; in the Annual Report for 1908, page liv; and in the Annual Report for 1909, page xi. On a small place the mixture of spores and water may be applied by a whisk broom when no pump is available.

#### OTHER FUNGI.

The methods for introducing any of the other fungus parasites previously mentioned are in general the same

as the method just described for the red *Aschersonia*. Of these fungi the red and the yellow *Aschersonia* can be introduced with the greatest certainty, and on the whole are generally the most efficient, excepting the brown fungus when conditions for it are right.

One important point in regard to the yellow *Aschersonia* must not be omitted. This fungus will thrive only upon the cloudy-winged whitefly. This fact, which is fully discussed in Bulletin 97, page 52, and in the Annual Report for 1909, page xxxvi, is important, since it would be useless to introduce the yellow fungus on the white-winged species.

#### PINNINO LEAVES.

Pinning leaves having whitefly larvae infected with a fungus upon them has been extensively practiced in the past, but spore-spraying has now almost entirely displaced this method. If leaves are used, each leaf should be pinned with its fungus side down to the lower surface of a leaf of the whitefly-infested tree, since the fungus will be more readily distributed by natural agencies when in its natural position.

#### ARTIFICIAL CULTURE OF FUNGUS.

All the fungus parasites of the whitefly can be readily grown artificially upon sterilized sweet potato and other media employed for such purposes. This was proven over two years ago by the Plant Pathologist, Prof. H. S. Fawcett, and the methods were described in his paper on "Fungi Parasitic Upon *Aleyrodes Citri*," Special Studies No. 1, University of the State of Florida, June, 1908. The brown fungus (*Aegerita icebbri*, Fawcett) is the only one which has so far failed to produce spores in artificial cultures. Artificial cultures of this fungus can not at present be used for spraying, as can those of the other fungi.

The red fungus has been grown extensively in the writer's laboratory on sterilized sweet potato, either in the form of plugs or finely ground. The best results were obtained when the plugs or ground sweet potatoes were placed in one-fourth pint and one-half pint wide-mouthed bottles, which were carefully stoppered with plugs of cotton batten. The potato was placed in the bottles which were then stoppered with the cotton batten, and sterilized by steam. Sterilizing destroys all the germ life in the bottle and on the potato. This is necessary, for otherwise the development of bacteria and other fungi would choke out the slow-growing red fungus. The plug of cotton batten keeps out all undesirable germs, but allows air to pass. The spores of the fungus are introduced into the bottles either by spraying them in sterilized water with a small atomizer, or by streaking them on with a sterilized platinum needle. The work must be done in a properly prepared dust-proof room.

The last culture of red fungus consisted of about 50 bottles. Fungus grown as just described can be employed for introducing into whitefly-infested groves as successfully as that occurring naturally. This has been repeatedly proven in infested trees near Gainesville and at other places. Since the natural supply of red fungus has been generally sufficient, it is not probable that it will become necessary to grow it artificially; but should it become necessary to supply the artificially-grown fungus, this can be done in ton lots or larger with proper equipment.

While the spores of this fungus germinate in 24 to 48 hours, fungus growth does not become visible on sweet potatoes for about 7 days. This time is about the same as upon whitefly larvae. Some spores are formed in 20 to 30 days; and this again corresponds with the development upon whitefly larvae. Spore formation appears to be completed in about 30 to 60 days. The fungus mass will then be of a light brick-red; in fact, the appearance

of this color may be taken as evidence that spores are forming. The fungus should be used at that time, but it will keep for a month, and longer during the winter and early spring. This fungus does not readily become weakened, or lose its virulence, by successive growth upon sweet potato as a culture medium, since successful growths of fungus have been started upon whitefly larvae from each of the first five generations.

What has just been stated in regard to the red fungus holds generally true for the yellow fungus, except that no extensive cultures of this fungus upon sweet potato have been made.

#### TREATMENT WITH INSECTICIDES.

In dry times, and in groves out of condition, the fungi may not thrive sufficiently, and it may become necessary to spray with insecticides, or to fumigate.

Spraying with insecticides has fallen more or less into disfavor. Operations and experiments of the Florida Experiment Station during the past year indicate clearly that effective spraying can be done. The difficulties in the past have risen from spraying being done at the wrong time, or were due to a lack of thoroughness, or to reinfestation from surrounding groves. The difficulty of doing the work so thoroughly that the under surfaces of all the leaves become wet with the spraying solution can be overcome in part by taking special care, and by spraying at a pressure of 100 pounds or over.

Spraying for whitefly can be carried on successfully during that portion of any season when most of the insects are in the larval or pupal stages. During the fall (beginning with October) and the greater part of the winter we find the whitefly in the larval stages, and later in winter in the pupal stages. During a part of April or May, soon after the disappearance of the spring brood of

adults, there is another period of about a month when but few adult whiteflies are present and the eggs have hatched. After May until the end of September all stages of the whitefly, including the adults, are generally present. During this period rains occur frequently, while the adults fly away from the spray, and the eggs are not generally destroyed by it. Spraying should then be done only when necessary to save the trees.

#### EXPERIMENTS IN SPRAYING.

In some orange trees (Mr. B. F. Hampton's grove near Gainesville) which were sprayed on May 7, 1909, with "Golddust" at a strength of 1 pound to 4 gallons of water, 91 per cent. of all larvae of the first to the third stages were dead after 10 days. The percentages of fourth-stage larvae killed was only 30.

These are the results of counting the dead and live larvae on 10 leaves, selected as representative of good spraying. On 36 leaves an average of 92 per cent. of all stages were killed. (An. Rept. 1909, p. xliii). Allowance was made for natural mortality, the percentage of which was computed upon leaves from unsprayed trees. The following temperature conditions existed on the day the spraying was made and during 6 days thereafter:



TABLE I.

MAXIMUM AND MINIMUM TEMPERATURES FOR 7 DAYS.

MAY, 1909	7th	8th	9th	10th	11th	12th	13th
Maximum .....	88	82	86	88	87	82	83
Minimum .....	62	63	66	66	61	61	61

Mean of maxima..... 85° F.

Mean of minima..... 63° F.

General mean ..... 74.5° F.

The results obtained on some 25 Satsuma trees (also in Mr. Hampton's grove), sprayed on June 2, 1909, with "Golddust" as before, are as follows: 99.5 per cent. of the second and third stages were killed, and 89 per cent. of the fourth stage and pupae. The average of all stages killed was .91 per cent. Ten leaves representing good spraying were selected nine days after spraying. Natural mortality was allowed for and computed from unsprayed trees. The following temperature conditions existed on the date of spraying and during 6 days thereafter.

TABLE II.

MAXIMUM AND MINIMUM TEMPERATURES FOR 7 DAYS.

JUNE, 1909.	2nd	3rd	4th	5th	6th	7th	8th
Maximum .....	99	88	82	90	90	90	88
Minimum .....	73	75	75	73	70	70	68

Mean of maxima.....89.6° F.

Mean of minima.....72 ° F.

General mean .....80.8° F.

The following table, published in the Annual Report for 1909, was primarily arranged to show the effectiveness of the two soaps indicated, but when compared with the two previous series of sprayings, this table becomes of greater interest, as is brought out in the discussion following. The larvae were mainly in the flat fourth stage of development, but no distinction of stages was made in counting them. The table gives the result on ten-leaves of spraying two or three trees with each strength of soap. The leaves were selected to represent good spraying. The sprayings were made near Gainesville in Mr. James Cel-

lon's trees, June 15 to 17, 1909, and the leaves were collected 4 to 15 days later.

TABLE III.  
RESULTS OF SPRAYING WITH SOAPS.

STRENGTH OF SOLUTION.	KILLED BY WHALE-OIL SOAP.	KILLED BY OCTAGON SOAP.
1 lb. to 6 gals. water.....	...91 per cent...	...96 per cent.
1 lb. to 9 gals. water.....	...88 per cent...	...95 per cent.
1 lb. to 12 gals. water.....	...77 per cent...	...80 per cent.
1 lb. to 16 gals. water and 3 lbs. washing soda....	...93 per cent...	...94 per cent.

The following temperature conditions existed on the day of spraying and during 6 days after:

TABLE IV.  
MAXIMUM AND MINIMUM TEMPERATURES FOR 7 DAYS.

JUNE, 1909.	15th	16th	17th	18th	19th	20th	21st
Maximum .....	98	93	93	89	92	88	92
Minimum .....	70	74	75	72	71	69	72

Mean of maxima.....94.3° F.

Mean of minima.....72 ° F.

General mean .....83.1° F.

In the above three series of spraying operations the figures indicate that the June spraying was more effective than the May spraying. Temperature, as well as stage of development, is apparently a factor in successful spraying, since we would expect the solutions to be more pene-

strating when several degrees warmer. Thus only 91.3 per cent. of the stages 1 to 3, and 30 per cent. of the fourth stage were killed with "Golddnst" with an initial temperature of 88 degrees and a mean for 7 days of 74.5 degrees; while 99.5 per cent. of the stages 2 and 3, and 89 per cent. of the fourth and fifth stages were killed when the initial temperature was 99 degrees and the mean for 7 days, 80.8 degrees. The results of June 15 to 17 in Mr. Cellon's trees on fourth stage larvae with the soap solutions were excellent, with an initial temperature of 98 degrees and a mean of 83.1 degrees. These figures, in conjunction with many general observations, indicate that we should spray the young larvae in the first to the third stages, and the thin flat condition of the fourth stage, rather than the older fourth stage larvae and the pupae. They also indicate that spraying during the hottest summer weather with the thermometer at about 99 degrees is more effective against all stages and especially against the fourth stage and the pupae, than spraying in cooler weather.

#### FUMIGATION.

Fumigation with hydrocyanic acid gas is recommended for winter treatment, no eggs or adults being present. A bulletin on the subject has been issued by the U. S. Department of Agriculture, describing the work carried on by Dr. A. W. Morrill and his assistants at Orlando. Those wishing to consult this publication should address the Superintendent of Public Documents, Washington, D. C. inclosing 15 cents, and asking for Bulletin 76 of the Bureau of Entomology.

#### WINTER TREATMENT.

Winter is a favorable time to treat the whitefly, because this insect is then in its larval stages, and there are no adults to fly away, nor eggs that are difficult to kill.

There are two methods of winter treatment—fumigation, and spraying. Where fumigation can be employed, it is to be preferred. Those who have carried on extensive fumigation experiments claim that it is less injurious to the trees than spraying with insecticides. Quicker and better results can undoubtedly be obtained with it, especially on the larger trees, where it is difficult to wet all the leaves by spraying. For small and medium-sized trees spraying can, however, be made nearly as effective.

The growers at Winter Haven have organized a protective league, and assessed each grower one cent per year for each tree he owned. In this locality the whitefly had just started in two or three groves, and the results of spraying in winter have been so successful that but few, if any, more whitefly larvae could be found last fall than three years ago. These spraying operations appear to be the most successful on record. The insecticide was a proprietary miscible oil. Another grower states that he has succeeded in keeping the whitefly confined to a few trees in one corner of his grove for four or five years by thorough spraying with another miscible oil.

For winter spraying the solutions must be used much stronger than at other times, and whale-oil soap solution should not be used weaker than 1 pound to 4 gallons of water.

#### LOCALITIES JUST BECOMING INFESTED.

Winter treatment should not be omitted in any locality in which the whitefly is just coming in and is confined to a limited area. Under such circumstances there is too much at stake in the form of a protective league as just illustrated. All the groves in such a locality are threatened, and no grower can afford to omit paying his share towards keeping the pest confined within its present limits as long as possible. It pays better to help fight the pest in another man's grove than to have it in one's own.

Work should not be postponed with the thought that something can still be done in the summer, since by so doing the whitefly is given another chance to spread during its swarming period in April or May. Fumigate, if possible; if not, then spray thoroughly.

#### BADLY INFESTED LOCALITIES.

Where a locality is completely and heavily infested, the trees should be treated in winter in order to give them a better chance to set fruit in spring. If co-operation can be effected, it is possible to do the work so thoroughly that no further treatment will be necessary until the next fall or winter. If co-operation for an entire locality is impracticable, it may be feasible to effect co-operation on the part of the owners of localized groups of groves. Where no co-operation whatever is possible, each grower should nevertheless treat his own trees. In this instance spraying should be the method of winter treatment. It would be inadvisable to go to the expense of fumigation where the grove is not isolated and reinfestation is certain, but spraying should be done. Later in April or May, when the grove has become reinfested from the groves of indifferent neighbors, it should be sprayed again. There is a time in April or May when the whitefly larvae are young and easily destroyed by whale-oil soap (1 pound with 6 to 9 gallons of water) or by any other good insecticide diluted sufficiently to be harmless to the leaves or young fruit. This period comes about two weeks after the spring brood of adults has disappeared from the wing. After that, during the period of summer rains, if conditions are at all favorable for fungus growth (plenty of moisture, and good condition of trees) the fungus diseases of the whitefly should be introduced. Finally, if necessary, the trees should be sprayed again in October or November; in which case treatment during the following

winter will not be necessary. (See also under the following heading).

### SPRING, SUMMER AND FALL SPRAYING.

#### SPRING TREATMENT.

Spring treatment should begin about two weeks after the winged whiteflies have disappeared. There are then only young larvae present. This period may occur during April or May, or sometimes earlier, depending upon the season and the locality. In localities where the spring rains are abundant and the general moisture conditions throughout the season generally suitable, the fungi, preferably the red *Aschersonia*, may be introduced as previously directed. Where the conditions for the fungi are not suitable, or where it is desired to depend altogether upon spraying, the spring period indicated is a most suitable one during which to spray. The advantages of spraying at this time may be summed up as follows: (1) The whiteflies are in the young larval stages and are easily killed; (2) they are mainly on the new growth and more easily sprayed; (3) the larvae are destroyed before sapping the strength of the new growth, and before much sooty mold has developed; (4) rain is not likely to interfere with the spraying.

#### SUMMER TREATMENT.

Spraying may also be carried on during the summer after the second brood of adult whiteflies has passed its period of greatest numbers, some time in July. During this time the whitefly develops more or less irregularly, there being all stages present in considerable numbers at nearly all times, and rain is generally abundant. For these reasons spraying at this time of the year is not generally advised, excepting when the trees are suffering

greatly. The fungi can generally be introduced to good advantage at this time, and they should be applied freely whenever the whitefly is present in sufficient numbers, and conditions are favorable for fungus growth.

#### FALL TREATMENT.

Fall is an important time to spray for the whitefly, and treatment may begin in October or November, or soon after the adult whiteflies of the late summer brood have disappeared, and after the laying of eggs have hatched. The Knight grove at Bay View, and F. M. Campbell's grove at Anoa were sprayed in the early part of November, 1908, with a spraying mixture whose principal ingredient was whale-oil soap (about 1 pound to 10 gallons of water) and about 90 per cent. of the larvae were killed. For the late fall spraying, whale-oil soap should not be used weaker than 1 pound to 4 or 6 gallons of water, but 1 pound to 6 or 9 gallons may be used earlier.

It is not necessary to spray two or three times during fall or winter, as some think. By doing thorough work 95 per cent. of the larvae are destroyed, and the remaining 5 per cent. will not increase until spring. In other words, spraying should be done so thoroughly that it will be unnecessary to repeat it for that brood.

The advantages of fall spraying may be summed up as follows: (1) The young larvae are abundant and easily killed; (2) they are killed before they wax fat at the expense of the trees; (3) *the trees remain clean for nearly five months*; (4) there are few rains to interfere with spraying.

#### SPRAYING SOLUTIONS.

Since spraying to kill the young whitefly larvae must be done in spring, summer, or fall, when either tender leaves or fruit are on the trees, it is evident that a spraying solu-



tion must be used that will not injure the foliage or the fruit. Almost any good contact insecticide can be employed, provided it is sufficiently diluted.

The experiments reported on a previous page show that soap solutions of 1 pound of soap to 6 gallons of water, destroyed all larvae in the first three stages, and most of those in the fourth and pupal stages. Thorough work resulted in destroying between 90 and 96 per cent. of all the larvae. Soap solutions of 1 pound of soap to 9 gallons of water destroyed about 90 per cent. Good's potash whale-oil soap No. 3 was used, and also Octagon soap. It is probable that any kind of soap will be effective against these young larvae. In winter and late fall the soap solutions should be used stronger, about 1 pound to 4 gallons of water, but a weaker solution used in the spring, summer, or early fall, will generally kill as many of the insects as the stronger solution in winter.

Experiments reported on a previous page show that "Golddust" used on young larvae at the rate of 1 pound to 4 gallons of water killed 90 to 95 per cent. Preliminary chemical examination showed that it consisted of about 25 per cent. of soap, 62 per cent. of washing soda, and about 13 per cent. of water. When we mixed one pound of whale-oil soap with three pounds of washing soda and used one pound of this mixture to 4 gallons of water we got about the same results as we did by using one pound of "Golddust" to 4 gallons of water. One pound of whale-oil soap alone to 9 gallons of water gave about the same result as the whale-oil soap and soda mixture. The cost in each case was a little less than half a cent per gallon. Whale-oil soap is therefore decidedly a cheaper material to use for spraying than "Golddust." A mixture as good as "Golddust" can be made at about one-half the cost by using 1 pound of whale-oil soap and 3 pounds of washing soda to 16 gallons of water.

## THREE SPECIES OF WHITEFLY.

About two years ago it was discovered that there are two distinct species of whitefly that seriously infest citrus trees in Florida. The second species, *Aleurodes nubifera*, is spoken of as the cloudy-winged species, and the other, *Aleurodes citri*, as the white-winged species. Previous to 1908 it was supposed that only one species infested the trees, namely, the white-winged species. The cloudy-winged species is so called because there is a delicate cloud-like or smoky area toward the ends of the wings. It should not be understood, however, that this cloudy-winged species is a recent comer. On the contrary, examination by A. L. Quaintance of whitefly material preserved in the Bureau of Entomology, Washington, D. C., has shown that this species existed in Florida prior to 1895. According to some drawings made in Louisiana in 1893 by Prof. Morgan, the cloudy-winged species existed there at that time. The white-winged species began to be studied back in the 70's, and was first described in 1893. So far as records show it appears that both species were probably introduced about the same time. The present distribution of the cloudy-winged is quite as extensive as that of the white-winged one. Sometimes both species can be found in the same locality and on the same tree. The white-winged one is the more destructive, and where both occur together the cloudy-winged species is relatively insignificant; although when alone this latter species frequently causes severe infestation.

A third species has recently gained entrance to the State, the so-called woolly whitefly, *Aleurodes howardii*. This species has been known to infest citrus trees in Cuba and other West Indian islands for some time, but has only recently become established in Florida about Tampa and Ybor City. Dr. E. A. Back of the Bureau of Entomology, Washington, D. C., stationed at Orlando, has written a brief account of the occurrence of this species in

Florida, in the Florida Fruit and Produce News for November 26, 1909, p. 5; and in Bulletin 64, part viii, Bureau of Entomology, Washington, D. C.

#### WHITEFLY AND FREEZING.

The benefits to the grower of any freezing sufficient to defoliate citrus trees may be considered about the equivalent of a fumigation or extra good spraying so far as the effects upon the whitefly are concerned. The great majority of the whitefly larvae dies on leaves killed by cold; but a few may survive, especially on any leaves that are drifted into some moist place where they do not dry out completely. In November and January, 1907-08, the writer collected fallen leaves at DeLand with live fourth-stage larvae and pupae upon them, some of which matured after being taken to the Experiment Station at Gainesville (see Bulletin 97, p. 62). The degrees of cold that have hitherto occurred in Florida have not exterminated the whitefly except in one or possibly in two places. At Crescent City the freeze of 1894-5 did exterminate the cloudy-winged species, probably the only one present there at that time. But as all citrus trees were frozen to the ground, and as this species appears to live on citrus only, it is easy to understand how the extermination took place. Freezing destroys directly but few, if any, of the larvae on leaves that remain uninjured.

#### QUARANTINE.

The whitefly can be kept out of non-infested groves for a considerable length of time. With but a little attention, growers can save for themselves thousands of dollars. This should be an incentive to every resident of Florida, whether a grove-owner or not, to help in checking the whitefly and keeping it from spreading. Something can be accom-

plished by closing private gates against vehicles coming from infested districts, since the winged whiteflies are frequently carried on persons and vehicles for long distances. Nursery stock and ornamentals when brought to one's premises should be defoliated if there is the least possibility of any whitefly being present. The whitefly is undoubtedly more frequently carried long distances on nursery stock than by any other means. As a special precaution, nursery stock may be fumigated after defoliating. To what extent whitefly may be carried on pickers' implements is an open question, but it is easy to conceive of adults or young larvae being carried in that way. Certain growers in non-infested localities have very wisely excluded the implements which have been used in infested localities. Such implements can be made safe, however, by a thorough spraying with soap solutions or other contact insecticide, care being taken to saturate all crevices with the solution. Picking bags and outer garments of pickers may be fumigated in air-tight containers with carbon bisulphide, at the rate of 1 to 3 ounces for a space the size of a barrel, leaving them in fumigation over night. Hydrocyanic acid gas may also be used. Gasoline used in an air-tight container will also do the work.

#### FOOD PLANTS.

The cloudy-winged species (*Aleurodes nubifera*) has not yet been found alive on any plants except species of citrus. Mr. A. L. Quaintance, however, reports *A. nubifera* on some gardenia leaves collected at Crescent City, Florida, in 1895, by H. G. Hubbard, and preserved in the Bureau of Entomology, Washington, D. C. (See Bulletin No. 12, part IX., Technical Series, Bureau of Entomology, U. S. D. A.). The following is a revised list of food plants of the white-winged species (*Aleurodes citri*). With regard to those marked by an asterisk, it has not yet been determined whether *A. nubifera* or *A. citri*, or both, infest

them. The writer is of the opinion that all were probably infested with *A. citri*.

Class I.—FOOD PLANTS PREFERRED BY *A. CITRI*.

*Native Species:*

- Prickly Ash (*Fagara Clava-Herculis* (L.) Small).
- Wild Persimmon (*Diospyros Virginiana* L.)
- Wild Olive (*Osmanthus Americana* (L.) B. & H.)
- Green Ash (*Frazinus lanceolata*, Borek).

*Introduced Species:*

- Citrus (all varieties).
- Chinaberry (*Melia Azedarach* L.).
- Umbrella (*Melia Azedarach umbraculifera* Sarg.).
- Cape Jasmine (*Gardenia jasminoides* Ellis).
- Privets (*Ligustrum* spp.).
- Japan Persimmon (*Diospyros Kaki* L. f.).

Class II.—FOOD PLANTS SOMETIMES INFESTED BUT NOT PREFERRED BY *A. CITRI*.

*Native Species:*

- Cherry Laurel or Mock orange (*Laurocerasus Carolinaiana* (Mill.) Roem.)
- Viburnum nudum* L.
- Buttonbush (*Cephalanthus occidentalis* L.)
- Smilax (*Smilax* sp.).
- \*Blackberry (*Rubus* sp.).
- \*Water Oak (*Quercus nigra* L.)
- \*Scrub Palmetto (*Sabal megacarpa* (Chapm.) Small).

*Introduced Species:*

- Coffee (*Coffea Arabica* L.)
- Pomegranate (*Punica Granatum* L.).
- Allamanda (*Allamanda neriifolia* Hook.).

- \*Honeysuckle (*Lonicera Japonica Halliana.*)
- \**Ficus altissima.*
- \**Ficus* sp. (from Costa Rica).
- Oleander (*Nerium Oleander* L.).
- Cultivated pear (*Pyrus* sp.)
- Lilac (*Syringa* sp.).
- Banana Shrub (*Michelia fuscata* Blume).
- Camelia, or Japonica (*Mamellia Japonica* L.).

#### PLANTS TO BE CONDEMNED.

The cape jasmine, chinaberry, nmbrella trees, prickly ash, privets, wild olive, trifoliolate orange (*Citrus trifoliata*), and all useless and abandoned citrus should be condemned and destroyed in all citrus-growing communities. Destruction of these plants will retard the restocking of citrus groves with whitefly after repressive measures have been carried out, and greatly check the spread of the whitefly in localities only partly infested or just becoming infested. While it is safest to destroy all these plants, it is the chinaberry and umbrella trees that are the most dangerous. It has been found by counts and calculations that a large infested umbrella tree may set free tens of millions of adult whiteflies during late summer and early fall, so that a dozen nmbrella trees may be counted upon to liberate hundreds of nullions of these insects each year to re-stock a treated grove.

These hundreds of millions swarm about apparently in an aimless manner, but have been observed to migrate a mile beyond their place of origin, indicating clearly how these trees are instrumental in spreading the whitefly to the outlying citrus groves. The other deciduous trees of the condemned list stand in the same relation to the whitefly as the chinaberry and umbrella trees, but being smaller they harbor fewer whiteflies. The late summer and fall migration of the whitefly from the umbrella and other deciduous trees is due to the fact that no new

foliage is produced at that time. The whitefly prefers to deposit its eggs upon new and tender foliage, and when this is absent, it instinctively leaves the trees, apparently in search of evergreen trees such as citrus, cape jasmine, and others, on which to deposit its eggs.

#### WHITEFLY AND INCREASE OF SCALES.

Scale insects have in some instances increased abnormally in citrus trees that were infested with whitefly. It has been thought that this increase of scales had been somehow brought about by the latter insect. That the whitefly cannot be the principal cause is indicated by the fact that increase of scales has not always been preceded by whitefly, and what whitefly infestation is not always accompanied by increased numbers of scales. The worst cases of infestation by scales, causing partial or complete defoliation and much loss of small twigs, were in localities suffering from lack of rain. It appears that this lack of moisture is the primary factor, and that the whitefly made a bad condition worse by further exhausting the sap of the trees. The lack of sufficient moisture weakened the trees. It also checked the development of the fungus diseases which normally keep the scales under control. Had the trees been supplied with sufficient moisture they would have been able to put on a fairly good growth. The new leaves would have supplied more food to the trees. (Leaves are not only the lungs of the tree, but also the organs in which food is elaborated.) This food would have been used in part to feed the scales and whitefly, and in part to maintain the vigor of the trees. These leaves would also have supplied more moisture to the air, and their shade would have kept the interior of the trees moister. This would have resulted in a thrifty growth of the almost universally present fungus diseases of scales. It has been noticed that scale fungi and whitefly fungi often thrive remarkably well even in dry localities in vigorously grow-

ing trees. It therefore follows that the better the condition in which the grove is kept, the less likely is it to suffer from the depredations of insects.

When there is a great increase of scales, whether or not whitefly is present, it is evident that the fungus diseases of these insects are absent or are not thriving. In this case spraying with some contact insecticide, or fumigation, should be employed to give immediate relief.

#### WHEN TO SPRAY FOR SCALES

In the spring, summer, and fall, it is not possible to use strong spraying mixtures, so that it may be necessary to spray the infested trees several times at intervals of some weeks. It will not always be necessary to spray the whole grove, but only the most severely infested trees. When whitefly is present the spray should, of course, be applied to these as well as to the scales.

The following precautions should be kept in mind when spraying for scales in spring, summer, or fall:

1. Spray when many young scales can be seen with a lens to be crawling about, or to have just attached themselves. These young scales appear either as oval moving specks or as round whitish dots. They are easily destroyed by a weak spraying solution which will not injure the fruit or foliage in any stage of growth.

2. Any contact insecticide may be employed, such as soap solutions, emulsions of oils, or good proprietary insecticides. Soap solutions of 1 pound of soap and 6 to 9 gallons of water will destroy the crawling scales and those just set, together with the young whitefly larvae, without injuring the trees.

3. Avoid insecticides that are recommended as useful for fungus diseases, because they also destroy the fungus diseases of the scales and whitefly. Whale-oil soap causes little or no injury to these fungi, and the same is true of some of the best proprietary insecticides.



4. During the period of summer rains the fungus diseases of the scales and whitefly should be distributed to those trees in which they do not occur in sufficient quantity.

5. The eggs of the scale insects, being sheltered beneath the old scales, are not easily destroyed by sprays. The old scales are protected by their waxy covering, and are not destroyed in great numbers by spraying solutions, unless of extra strength. Hence, repeated spraying in warm weather when the young are hatching, may be made more effective than winter spraying.

#### RESUME OF SCIENTIFIC RESULTS.

1. Less starch produced by trees affected with sooty mold.
2. Definite advantages gained by spraying fungus over natural spread.
3. The vitality of spores is probably injured by a brass vessel when the mixture is allowed to stand in it.
4. Proof that the fungi grow best in hot wet weather.
5. Yellow fungus thrives only on *A. nubilifera*.
6. Cultures of fungi used for spraying with success.
7. Cultures of fifth generation retain their virulence.
8. Pupae apparently more or less immune to fungus attack.
9. Use soap solutions for spraying whitefly.
10. Proof that spraying with insecticides is most effective in hottest weather, against younger larvae.
11. A second species of whitefly.
12. Some new food plants of whitefly.

**SUMMARY.**

1. It is easy in Florida to start growths of the fungus parasites in whitefly-infested trees at the proper time.

2. The proper time to spray fungus spores is when there are many young larvae on the leaves and the weather is both moist and warm.

3. The fungi should be put on the trees as soon as favorable conditions arise, in order that their growth may be helped by the summer rains.

4. If the fungi are applied late in the season, they will not increase sufficiently to be of material advantage until the next year.

5. During a wet spring, favorable conditions for starting growths of fungus may arise as early as April. Generally speaking, the periods of summer rains is the most certain time to start fungus.

6. In localities where there is not sufficient moisture, or when the trees are out of condition, the fungi grow sparingly, and spraying with insecticides or fumigation should be carried on to check the whitefly.

7. Spraying with insecticides should be done when there are few or no adult whiteflies swarming about, and when all or most of the eggs have hatched, which is about 10 to 14 days after the last of a brood of adults has disappeared.

8. In April or May, in October or November, and during winter, are the times when the most effective spraying with insecticides may be done.

9. In summer the fungi should be applied, because during the period of rains spraying with insecticides is difficult, but the fungi can then be spread to the best advantage.

# **THE PEANUT:**

## **ITS CULTURE AND USES.**

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### **INTRODUCTION.**

Very little is known regarding the early history of the peanut in the United States except that it was brought into the country during the period of slave importation and became established along the James River in Virginia. It is not until after the Civil War that we find any record of peanuts becoming a commercial crop, and then only on a small scale. Prior to this time peanuts were grown in gardens for home use, and the nuts when parched were considered a great treat by the children. Soon the value of peanuts as a money crop was recognized and farmers began growing an acre or two for the market, and upon this beginning has been built an industry that represents ten or twelve millions of dollars annually. During the early days of the peanut industry only one or two varieties were recognized, those having the largest pods being known as "Virginians" and the smaller podded sorts as "Africans." Soon the farmers observed that among the large-pod variety there were certain plants that were of a more compact or bunch habit than the general crop, which spread or ran upon the ground; also that these bunch plants produced larger pods than the

runner type. Accordingly the two sorts were separated, and the names of "Virginia Bunch" and "Virginia Runner" given them.

The habits of the peanut render it especially adapted to cultivation on the sandy soils throughout the Southern States, and the wide ranges of uses to which it may be put makes it a desirable addition to our farm crops. During past years the greater part of the commercial peanut crop has been produced in Virginia, North Carolina, South Carolina, Georgia and Tennessee. With the boll weevil injuring the cotton crop of the Southwestern States the peanut promises to become an important money crop and a part of the regular farm rotation of this section. In many cases the peanut has proven fully as profitable as any other farm crop. The production of peanuts has not kept pace with the increased demand, and there is little danger, for the present at least, of overstocking the market. Spanish peanuts can be grown for  $2\frac{1}{2}$  cents a pound, and when the general market becomes supplied the oil mills can handle the surplus, making therefrom one of the finest cooking oils that can be produced. The cake resulting from the manufacture of oil is valuable for stock feeding and fertilizer. There is always the opportunity to convert peanuts into pork that will bring fancy prices.

The famous Smithfield hams and bacon, which sell at from 30 to 40 cents a pound, are made from hogs that are partly fed on peanuts. All kinds of live stock will eat and thrive on peanuts and peanut hay.

The peanut belongs to the same family of plants as do the clovers, alfalfa, beans and peas, but has the peculiar habit of developing its seeds underground instead of on top, as do most of the legumes. During the early days when peanuts were first cultivated it was thought necessary to cover the blossoms with soil in order to secure well-filled pods. It is only necessary, however, that there should be a bed of loose soil throughout the plants and

they will then care for themselves. The blossoms of the peanut appear above ground, shooting out from where the leaf joins the stem, and after fertilization takes place the flower withers and the little stem or peg elongates and pushes down into the earth, where the pod develops. This habit of the peanut has an important bearing upon the production of the crop in that peanuts should be planted only upon loose, sandy soils, and the soil must be well cultivated and loose in order that the pegs may enter the soil and form pods.

In common with other legumes the peanut has the power, through the agency of bacteria upon its roots, to draw the nitrogen from the air, and not only use it for its own growth, but to store it for the use of other plants as well. An illustration of this may be had by pulling up a peanut plant and noting the immense number of nitrogen-gathering nodules upon its roots.

### THE SOIL AND ITS PREPARATION.

Peanuts thrive best on a rather loose, sandy loam soil, such as is found in abundance throughout the Southern States. The soil should be well drained, or what is ordinarily termed a "warm" soil. Peanuts can be grown on the heavier alluvial soils, but are easier to cultivate and mature better on the light, sandy loam soils. It will pay to prepare the land for peanuts in a most thorough manner, and much of the difficulty in keeping the crop clean will be avoided by harrowing or disking the land two or three times before planting. The Spanish variety may be grown on much heavier land than the Virginia Bunch or Runner.

### CROP ROTATION IN PEANUT CULTURE.

Peanuts should not be grown exclusively on any farm, but in rotation with other crops. Peanuts are adapted

to growing in a system with corn, cowpeas, oats, cotton and Irish potatoes, the cropping arrangement being made to conform to local requirements. The crop of peanuts should invariably follow some crop that has been kept cultivated, and reasonably clean, as this decreases the labor required to keep the weeds under control.

When fitting land for peanuts it should be plowed about the same depth as for corn, broadcast plowing being preferable to hedding. If the land has been in corn the previous season it should be plowed in ample time to allow the materials that are turned under to thoroughly decay before planting time. Some growers prefer to bed the land and then drag down almost level before planting, but, on the whole, it is better to keep the surface smooth and then work the soil toward the rows in cultivating.

#### FERTILIZERS REQUIRED BY PEANUTS.

Commercial fertilizers, if any are used, should be applied about the time the land is given its last harrowing before planting. A crop of 60 bushels of peanuts will require about 85 pounds of nitrogen, 15 pounds of phosphoric acid, 32 pounds of potash, and 48 pounds of lime. It would be difficult to secure a fertilizer that would supply these elements in the above proportions; in fact, it would not be profitable to return all of these elements, especially the nitrogen, to the soil by means of commercial fertilizers. A fertilizer containing about 2 per cent nitrogen, 8 per cent phosphoric acid and 8 per cent potash is recommended for peanuts, and this may profitably be applied at the rate of 200 to 400 pounds to the acre. This will add the necessary phosphoric acid and potash to grow a crop, but only a small part of the nitrogen; the remaining nitrogen can be secured more cheaply through the agency of cowpeas, crimson clover, and the peanuts themselves if they are properly handled.

Stable manure is not a desirable fertilizer for peanuts unless applied about a year in advance. The objections to manure are that it carries with it too many weed seeds and also produces a rank growth of peanut vine at the expense of the peanuts.

Lime is essential to the proper ripening of the peanuts, and where not already abundantly present should be applied to the soil. Marl is often used as a substitute for lime, being hauled and spread upon the land during the winter months. Ordinary lime may be used at the rate of 300 to 600 pounds to the acre on land being planted to peanuts. In many cases the soils of the Southern States are pretty well supplied with lime. Where there is any doubt about the matter lime should be applied to a portion of the field at least and its influence upon the yield and ripening of the peanuts observed. The lime should be applied to the surface after plowing and while fitting the land for planting.

Wood ashes are an excellent fertilizer for peanuts, as they contain both potash and lime. Unfortunately, the supply of wood ashes is quite limited and only small quantities may be secured. Where obtainable, unleached wood also may be applied to peanut land at a rate not exceeding 1,200 pounds to the acre.

Several methods are followed in distributing the fertilizers for peanuts, and while some growers employ a one-horse distributor and sow the fertilizer where the row is to be, others scatter it broadcast and harrow it into the soil. The roots of peanuts do not spread like those of corn, and it may be more economical to apply the fertilizers to the row rather than broadcast.

## PLANTING PEANUTS.

### SELECTION OF SEED.

Careful selection of seed is just as important with peanuts as with any other farm or garden crop. Our best

varieties have originated by selection, and it stands to reason that they may be still further improved by the same process. The best of the crop should always be saved for seed, and wherever a particularly fine plant is found it should be saved separately and the peas planted in a row to themselves, or in a small patch where they can be closely observed. If several extra fine plants were selected and the peanuts from each saved separately, this seed might be planted in a special seed plat, a row being devoted to the product of each plant; in this way comparisons may be made from time to time and the best saved for further selection. The ideal plant should not only produce a large number of pods, but the pods should be well filled, uniform in size, smooth and of bright color. The peas themselves should be plump, bright, uniform in shape, and well filled. If a grower does not have a good strain of seed, he should purchase from someone who has given the matter attention; then in future years give especial care to the matter of saving good seed.

#### PLANTING SHELLLED OR UNSHELLED PEANUTS.

The seed of the large varieties of peanuts are practically all shelled by hand for planting. In the case of the Spanish the peas practically fill the pods, making it difficult to remove the shell by hand. The machines used in the factories for shelling peanuts break the peas more or less, and even when the peas are not broken the germination is often injured by the rough usage in shelling. For this reason it has been found safer to plant the Spanish peas in the shell almost exclusively. The shelled peas will sprout a little more quickly than those in the shells, but a few days' time will not make any material difference. If desirable, the pods may be soaked in water for a few hours before planting, in order to hasten germination.



## PLANTING MACHINERY.

The machines now upon the market for planting peanuts are constructed somewhat upon the plan of the one-horse cotton planter. These machines are well adapted to planting the shelled peas, both of the large and small varieties, and, if the peas are clean and free from stems, are quite satisfactory for planting the Spanish nuts in the shells.

In using the one-horse machines the land is first laid off in rows one way by means of a marker similar to that used in laying off corn rows. The planter is then run in this mark and it drops, covers and rolls at one operation. The different distances of planting are regulated by changing a gear wheel on the machine.

## PLANTING BY HAND.

For hand dropping, furrows or marks are made with a sweep-stock or single shovel just a little in advance of the droppers to prevent drying out. The seed peanuts are hauled to the field in bags, and close-woven baskets of about half-bushel size have been found desirable to drop from. The droppers simply take a small handful and work them between the thumb and first finger, at the same time stooping slightly in order to drop the pods at regular distances. Behind the droppers the seed is covered by means of a cultivator having the center teeth removed and a notched board placed across the rear portion, the notch coming directly over the row. The horse that draws the covering cultivator or harrow should be hitched with a side draft so that it will not walk directly upon the row.

## DISTANCES TO PLANT.

The planting distances will depend upon the variety being grown; also upon the strength of the land. For

the Virginia Bunch variety the usual distances are 30 to 36 inches between the rows and 10 to 12 inches in the row; for Virginia Runners the rows are placed 36 to 40 inches apart and the plants 12 to 16 inches apart in the rows. For Spanish and other similar varieties the rows are placed from 32 to 38 inches apart and the plants 8 to 12 inches apart in the rows.

#### DEPTH TO COVER THE SEED.

The depth to cover the seed will depend somewhat upon the compactness of the soil. If the soil is of a light sandy nature and in good condition the seed should be covered about an inch deep. Should the soil at planting time be quite dry it will be desirable to cover the seed at least  $1\frac{1}{2}$  or 2 inches to insure germination.

#### PROTECTION OF SEED FROM ENEMIES.

After planting, seed peanuts are often molested by moles, crows and pigeons; blackbirds are also accused of destroying the young plants just as they come through the ground. For the protection of the seed in the shell from moles it is permissible to coat the shells very lightly with pine tar thinned with kerosene. It would hardly be permissible to coat the shelled seed with tar, although a few peas might be tarred and mixed in with the regular seed. For protection against crows stretch lines of white string across the field; also scatter a few tarred peas over the surface of the ground. Pigeons are perhaps the most difficult to either frighten or repel, and the use of a shotgun is the most certain remedy. If the seed are all securely covered in planting there will not be so great danger of crows or other birds getting a start upon them.

## CULTIVATION.

## TOOLS REQUIRED.

The tools adapted for the cultivation of peanuts are practically the same as those required for corn. Shortly after planting the peanut field may be gone over once or twice with a weeder of the King or Hallock type, or with a light harrow; to loosen the surface and destroy weeds that are starting. In using these tools very little attention need be paid to the rows; in fact, many growers prefer to go directly across the rows. Later, after the plants appear and the rows can be followed, one or two teeth can be removed from the weeder, and this type of cultivation continued until the plants are large enough for working with regular corn cultivators. A two-horse spring-tooth riding cultivator is one of the best implements for handling the peanut crop, and after the plants attain considerable size the spring teeth can be changed for the regular shovel teeth. A one-horse cultivator having five teeth is also an excellent implement, as the size of the shovels can be increased as the crop becomes larger, or hillers can be attached for working the soil toward the rows of plants.

## METHOD OF HANDLING THE CROP.

Throughout the growing of a crop of peanuts it should be the aim to keep the entire surface of the soil fine and loose, and a bed of loose soil near the plants in which the pods may form. It is scarcely necessary to add that the crop should be kept free from weeds. At the final cultivation it is considered a good practice to throw the soil well toward the plants, forming a bed, at the same time leaving a small furrow in the center of the alley to provide drainage in case of heavy rains. It is not necessary to cover the blossoms or to throw soil over the vines. Some growers follow the practice of rolling the

peanuts to make the pegs go into the ground and form pods. The best method is to provide an abundance of loose earth near the plants and they will have no difficulty in plants setting pods. Care should be taken, however, that the pegs that are already rooted be not disturbed by the final cultivation. Hand hoeing may be necessary; especially during a rainy season, when the grass grows rapidly

#### HARVESTING.

Peanuts are harvested by lifting the vines from the ground with the pods attached and then stacking them around small poles to cure. Proper harvesting and curing is the most important part of the handling of the peanut crop. Many persons who are growing peanuts for the first time have an idea that the crop may be handled in some easier and cheaper way than by stacking, but many years of practice has shown that stacking around poles is the simplest and best method. By placing the vines and peas in the small stacks they are permitted to dry slowly and at the same time are in so small quantity that they will not become musty.

The proper time for harvesting the peanut crop is indicated by a ripening appearance of the vines. This consists of a slight yellowing of the foliage and a drooping of the stems. A few days later some of the lower leaves will begin to fall, especially if the weather is dry. To the northern limits of the peanut territory the harvesting should be done just before frost. Many beginners insist upon digging their peanut crop too early and before the peas have fully matured. It is true that there may be a pod now and then which bursts and sends forth a sprout; but the number of these are few as compared with those of later formation which are rapidly filling. Where good peanut hay is especially desirable the crop should be harvested in time to secure the best quality of vine and leaf.

## LIFTING THE PEANUTS FROM THE SOIL.

The usual custom in the older peanut sections has been to simply run a plow under the roots and lift them from the ground. Sometimes a specially designed plow is used having a share or point with a broad wing to extend beneath the plants; in other cases an ordinary plow is used, but the turning or moldboard is removed to prevent the furrow being turned, the idea being to simply loosen the plants. This practice of plowing out the crop has been responsible in a great measure for the general depletion of soil fertility throughout the peanut belt. To maintain soil fertility these roots must be left in the soil. By the old method of plowing out the crop almost all of the roots are removed, and as they have not subsequently been returned to the soil, depletion of fertility has been the result. The proper method is to employ a tool which will cut off the greater portion of the root and leave it in the soil. In several sections the farmers have had special tools made for running under the peanut vines, and some of these are worthy of more general use.

## MACHINES FOR DIGGING PEANUTS.

Some of the regular machine potato diggers have been found quite satisfactory for harvesting peanuts, but as a rule these implements have not sufficient clearance to allow a heavy growth of peanut vines to pass through. At present very much larger machines are being perfected and especially adapted to the work in the peanut fields. The machine or elevator potato diggers require about four strong mules to pull them, but may be so regulated that the sharp point of the digger will cut off the roots just below where the peanuts are formed, carry the vines with the peas attached up and over the elevator device, and deliver them on the ground behind the machine with practically all of the soil shaken from them. An outfit of this kind will dig from 8 to 12 acres daily and require

about 20 hands to stack the vines behind it. In land that is weedy there is always difficulty in harvesting the crop, regardless of the kind of implement used for digging.

#### METHOD OF STACKING PEANUTS TO CURE.

As already mentioned, the proper method of curing peanuts is to stack them, vines and all, around stakes set in the field where the crop is grown. Before starting to harvest the crop provide the small poles to be used as stakes around which to stack the peanuts. These stakes should be 7 feet in length by about 3 or 4 inches in diameter, and may be either split out of large logs or simply small saplings with the bark upon them. From 12 to 35 of these poles will be required for each acre, according to the stand and growth of vine; the rule, however, is about 22 stacks to the acre. Have the poles hauled and piled where they can be conveniently distributed through the peanut field when the rush of harvesting comes on.

As a rule, 11, 13 or 15 rows of peanuts are placed in a single row of stacks. The digging machine is started in the center, on the row where the stacks are to stand, and is worked outward until the necessary number of rows are lifted. After the machine has gained sufficient headway the poles are distributed at distances varying from 12 to 20 paces and set in the ground by means of a pointed bar, a peg and a maul, or by a post-hole digger, and tamped in place. The stake should be set into the soil sufficiently deep to prevent the stack blowing over. On the other hand, they should not be set so deeply as to prevent their being easily lifted with the stack at thrashing time.

Peanuts should not be handled when there is dew or rain upon the foliage, but, aside from this, they may be stacked within an hour or two after digging. Before starting to build the stack nail a couple of short pieces of

lath at right angles across the stake about 8 inches from the ground, then simply build the stack upon these, keeping the peas or roots close around the pole and giving the outer part of the stack a downward slope to carry off the water during rains. As the stack is nearing completion it should be kept higher in the center and drawn into a point. If convenient, the top of the stack may be finished with a bundle of dry grass, or a few peanut vines may simply be rolled together and pressed down over the top of the pole. Wet or green hay should never be placed on top of the stack. When completed, the stack should be about 6 feet in height and 30 inches in diameter.

#### LENGTH OF TIME THAT PEANUTS SHOULD REMAIN IN THE STACKS.

Once the peanut vines are in the stacks they will be comparatively safe for 5 or 6 weeks, or until they are dry enough to pick from the vines. As a rule, the curing period will require at least 4 weeks, and if the peas are not molested by birds, field mice, rats or thieves they may remain in the stacks for 3 or 4 months without injury. The crop will not be ready to pick from the vines until the stems have become brittle and the peas have attained a nutty flavor.

#### PICKING PEANUTS FROM THE VINES.

Formerly peanuts were all picked from the vines by hand, the work being done largely by negro women and children. Recently there have been developed several machines for doing this work. These peanut-picking machines are of two types, one having a cylinder like the ordinary grain thrasher, and in the other a picking mesh of diagonally woven wire is employed.

## PEANUT-PICKING MACHINERY.

The essentials of a satisfactory peanut-picking machine are, first, that the pods should be picked clean from the vines without breaking or cracking the shells, and, second, that the peanuts be cleaned of all the coarser dirt and separated from the pieces of stems. There is always a small quantity of very fine dirt adhering to the hulls of the peanut which must be separated from them in the cleaning factory. The greatest objection to the work of peanut thrashers in the past is that they broke too many of the shells, in many cases breaking the kernels as well and rendering them unsalable. This breaking of the shells is a more serious damage than might appear at first thought, as the keeping qualities of the nuts depend upon their not becoming broken. There are a number of insects which attack peanuts while in storage, especially during the summer months, and these cannot injure the kernels unless the shell is cracked or broken.

The picking of peanuts is paid for at so much per hag of about 4 bushels; 35 cents a hag being the ruling price. In some sections the owners of the picking machines do the work for every tenth hag, or where they provide a baling machine and press the peanut hay into bales they take every eighth hag, but none of the hay. Hand picking is paid for at the rate of from 40 to 50 cents a hundred pounds.

## SACKING AND HANDLING PEANUTS AFTER PICKING.

As the peanuts come from the picker they are placed in sacks and either hauled direct to the cars or stored for later delivery. The standard peanut hag is about 4 bushels, 90 or 92 pounds of Virginias and 110 to 120 of Spanish. As the bags are filled they are sewed and tied at the corners to facilitate handling. If the peanuts are not to be sold immediately, they are often taken from



the bags and stored in bins or in slatted cribs where they will get air. The storage room should be proof against rats and mice.

The peanut vines, if properly cared for after the removal of the peas, make an excellent hay. The best plan is to have a baling press working while the thrashing or picking is being done and press the vines into moderate-size bales.

The peanut-picking machines break the hay considerably, but by careful handling in baling the leaves and stems can be worked into the bales together in the proper proportions. The feeding value of peanut hay renders it worth while to take special precautions in curing and handling it. One important point in curing peanut hay is to get the vines into the small stacks soon after digging them; also to avoid having the hay become wet by rains.

#### VARIETIES OF PEANUTS.

At present about five varieties of peanuts are grown in the United States, these being known as Virginia Runner, Virginia Bunch, African (or North Carolina), Spanish, and Valencia, commonly known as Tennessee Red. The Virginia Runner and Bunch produce peas that are practically alike, these being the Jumbo or parching peanuts of our markets. The African, or North Carolina, as it has come to be called in this country, has a spreading vine and produces a medium-size pea, which is used for shelling purposes and for the smaller grades of parching stock. The Spanish variety is the small peanut, with only two peas in a pod, which is used so extensively for the manufacture of salted peanuts, peanut butter, etc. The Spanish has an upright or bunch habit of growth, with the peanuts clustered about the base of the plant. The Valencia, or Tennessee Red variety, has rather large and sometimes very long pods, with anywhere from two to seven small red peas crowded together in the pods. The

Valencia is in demand for use in the manufacture of salted peanuts and peanut butter. A form of the Valencia known as Georgia Red or Red Spanish is extensively grown for hog and cattle feeding in parts of the Southern States. However, this variety is not desirable for the market. For the present, the true Spanish, or white Spanish as it is sometimes called, is the proper variety to grow throughout the Southwestern States, as it is easy of cultivation and contains a high percentage of oil.

#### MARKETING OF PEANUTS.

The peanuts as they come from the picking machine on the farm are generally bagged, and either hauled direct to the cars or stored for a short time in barns or sheds until they can be shipped. It should be the aim of every grower to have his crop go into the bags in just as clean a condition as possible, free from stones, sticks, dirt and pieces of stems. Where the peanuts are not properly cleaned the buyers are compelled to dock the weights, and this always results in dissatisfaction to both parties. If the peas are not clean as they come from the thrasher they should be run through a fanning mill to blow out the dirt, and afterwards picked over by hand if necessary.

Peanuts are comparatively light to handle and can be transported considerable distances, and it is not necessary to have a factory in every section where peanuts are grown. As a rule, the buyers from the factories come to the various shipping points to inspect, purchase and load the peanuts into cars as they are hauled in by the farmers. Another method is where the factory is represented in a town by a merchant who buys the peanuts from the farmers and stores them until wanted for shipment to the factory.

## WEIGHT OF PEANUTS.

The unit in handling peanuts is the pound rather than the bushel or bag. The large Virginia peanuts weigh about 22 pounds to the measured bushel, while the Spanish weigh about 30 pounds to the bushel. Two and one-half cents a pound for farmers' stock would mean about 75 cents a bushel for Spanish, while  $3\frac{1}{2}$  cents a pound, or 77 cents a bushel, would be the ruling price for Virginias. By using the pound as the unit in buying and selling peanuts the troublesome question of weight per bushel will be avoided. Peanuts grown in one section may weigh more to the bushel than those grown in an other or even an adjoining territory.

## THE CLEANING FACTORY PROCESS.

In the factory the peanuts are fanned and polished to remove the dirt, and are separated into a number of different grades. During the process they are all carefully picked over by hand and cleaned until the finished products would scarcely be recognized as coming from the rough stock that was shipped in by the farmer. All of the shelled or broken peas must be separated from the whole ones and worked into shelled stock of various grades.

In the factories where the Spanish are handled the process is not so complicated, yet even here there is the same careful hand picking to remove inferior peas and refuse not taken out by the cleaning machinery. The peas are passed over a fan, then are shelled and the hulls blown out. Next the peas are run through a machine which separates the split or broken peas from the whole ones. The different grades are then run on what are termed picking belt, beside which a large number of women are seated and pick out every inferior pea or particle of foreign matter. The refuse from a peanut factory

often contains practically every waste or cast-off article that may be found on the farm. After the cleaning process is completed the peanuts are bagged in clean, new burlap bags and marked with a stencil showing the brand, grade and name of the cleaner.

## USES OF PEANUTS.

### USES OF PEANUTS AS FOOD.

Peanuts now find uses in a great many ways aside from being roasted and sold in packages. There is a great and ever-increasing demand for peanuts to be used in the preparation of salted peanuts, peanut butter, peanut candies, peanut flour and vegetarian meat substitutes. Owing to the high nutritive properties of peanuts they are rapidly assuming an important place as a standard human food, ranking in this respect with other legumes which they resemble in composition. The consumption of peanut butter alone amounts to hundreds of carloads of the product annually.

### PRODUCTION OF OIL FROM PEANUTS.

In France and Germany millions of bushels of peanuts are annually crushed for oil, the oil being used for cooking, for salad making, and in the place of butter, while the cake resulting from the manufacture of the oil is used as stock food. In this country we have many oil mills that are either idle or running on short time on account of the shortage of cottonseed, and it is only a matter of a little time until our production of peanuts will enable us to build up a great industry in the manufacture of peanut oil. In general the oil from the peanut has the same culinary and table uses as olive oil, cottonseed oil, and some other vegetable oils, and, like them, is considered a wholesome and valuable food product. Thirty

pounds, or a bushel, of Spanish peanuts will yield 1 gallon of oil and about 20 pounds of cake. A gallon of this oil is worth 75 cents wholesale and the cake is worth 1½ cents a pound, or 25 cents, making a total of \$1 from a bushel, from which the working cost must be taken. Assuming that an average of 40 bushels of Spanish peanuts can be grown to an acre, we have a very promising proposition in the manufacture of peanut oil, especially when the peanut hay will almost pay the cost of growing the crop.

#### VALUE OF PEANUTS AS STOCK FEED.

All of the inferior or refuse peanuts can be used to advantage on the farm for feeding to hogs and also to the general farm animals. There is not a pound of the entire peanut crop, including roots, stems, leaves and peas, but that has some value, and not an ounce should be wasted. The tops when used as hay have a feeding value equal to the best clover, alfalfa and cowpea hays; in fact, peanut hay is one of the best dairy feeds for milk production. As a result of the handling of peanuts in the cleaning factories there are quantities of finely broken and shriveled peas that are sold for hog feed, and sometimes ground into meal and sold for feeding to cows. The cake resulting from the manufacture of peanut oil is equal to the best cottonseed meal for feeding purposes.

#### COST OF GROWING PEANUTS AND RETURNS.

The total average cost of growing an acre of peanuts in the Southern States is about \$12 where no commercial fertilizers are used. Add to this the cost of 200 to 300 pounds of fertilizer and the total will not exceed \$16 an acre. On a block of land consisting of 54 acres in northern Louisiana during the season of 1910 the itemized cost per acre of production was as follows: Plowing and fitting the land, seed, and planting, \$5.35; cultivation, \$2.80;

harvesting and stacking, including the cutting and hauling of poles, \$3.87; thrashing and hauling to car, \$4.80; bags and twine, \$1.05; total cost, \$17.87. This land produced an average yield of 60 bushels to an acre and 1 ton of hay. The peanuts sold for \$1 a bushel of 30 pounds and the hay for \$12 a ton, making a total return of \$72 an acre. Deducting the cost of growing, which included the foreman's time, the grower received a net return of about \$54 an acre, or \$2,916 from the 54 acres.

Doubtless a great many more peanuts will be grown in the future than in the past; but the demand is also increasing and there is money to be made so long as the price for Spanish peanuts remains above  $2\frac{1}{2}$  cents a pound for farmer's stock. There is great interest in hog raising throughout the Southern States, and peanuts are a valuable adjunct to corn for the production of high-grade hams and bacon.

## HOG CHOLERA.

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*By A. P. SPENCER, Assistant in Extension, University  
of Florida, Gainesville.*

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Perhaps the greatest obstacle that hog raisers in Florida have to contend with, is the disease known as hog cholera. A conservative estimate places the direct loss from hog cholera throughout Florida for 1910 at a quarter of a million dollars. Furthermore, this disease is responsible to a large extent for the inferior hogs that are found too generally in the State. Many farmers who would otherwise have purchased improved stock to build up their herds, have hesitated and in most cases chosen not to do so because of the danger of loss from hog cholera. Since the greater part of Florida is without a well-defined stock law, the average farmer is powerless to keep his herd free from such an infectious disease as hog cholera.

### SYMPTOMS OF HOG CHOLERA.

All the animals may not show similar symptoms when affected with hog cholera, but generally speaking the following are typical symptoms.

The hog is sluggish; has little appetite; a desire to drink much water; some diarrhoea; inflamed eyes, with a sticky discharge often glueing the eye-lids together; usually a hacking cough; a weak uncertain walk; and red blotches, which afterwards turn purple, over the body. Usually the hogs live only from 3 to 10 days after

the first sign of disease. Few recover, and the recovery in such cases is slow, while frequently the hair comes off and ulcers appear on the body.

#### TREATMENT.

It is the general opinion among those who have had most experience with this disease, that ordinary medicines are of little or no value in curing it, and that the only treatment that has been effectual is the serum treatment prescribed by the Bureau of Animal Industry, Washington, D. C. To describe in detail the method of obtaining the serum and the precautions that must be observed in its manufacture, would require too much space. It is, however, sufficient to state that the manufacture of this serum must be under the control of a competent Veterinarian. It must be produced under sanitary conditions, and then judiciously distributed.



## HOG CHOLERA SERUM.

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*From Florida Health Notes.  
(Official Bulletin State Board of Health.)*

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### METHOD OF DISTRIBUTION.

In accordance with Chapter 6167, Laws of Florida, 1911, the State Board of Health last August commenced the administration of hog cholera serum, sending its Veterinarians to such points as requests came from; but the number of calls for this service increased so rapidly that it was found impracticable to attempt to detail men oftentimes a long distance to perform this work, and in many cases the Veterinarians were so busy that compliance with requests was delayed and the owners dissatisfied because of the loss of hogs from cholera.

At the 1912 annual meeting of the State Board of Health the compliance with this statute and methods to be followed were thoroughly gone into, and the work has been placed upon an entirely new basis. The Board now furnishes the serum free to hog cholera agents of the Board. These agents, one or more to the county, administer the serum at a specified cost to the owner, and make reports of their work to this office. The Board also retains its present staff of field Veterinarians who attend to inquiries from those counties in which there is no cholera agent and who are always seeking to find men in such counties to recommend for this appointment.

## QUALIFICATIONS AND DUTIES OF HOG CHOLERA AGENTS.

*The duties of these agents consist in the administration of the serum to hogs for the prevention of hog cholera. In making such appointments the Board requires that prompt and reliable reports of work done shall be made to this office upon forms to be furnished for the purpose, and that the work will be done in strict accordance with the rules to be issued by the State Health Officer and the State Veterinarian.*

*It should be distinctly understood that the administration of serum to well hogs does not prevent the disease, and to sick ones does not cure it. What it does do is this: When administered to hogs soon after they are exposed to hog cholera and before they have developed the disease it so modifies the course of the disease that few cases die, after which these hogs are permanently immune. But to administer it in the absence of the disease, or to administer it to the sick with the hope of curing is that much waste of energy.*

*The Board furnishes to these agents, free of charge, such quantities of serum as are necessary for the work of each such agent, but it is required that the disposition of one lot of serum shall be reported upon before another is furnished. The agent is expected to furnish his own hypodermic syringe for the work, and where proper syringes can not be had conveniently or otherwise, the Board assists in procuring these.*

## CHARGES.

*The following scale of charges for administering hog cholera serum when the work is done at a reasonable distance from the residence of the agent, is suggested by the Board, and any radical departure therefrom is to be considered an imposition upon the owner of the hogs and will be sufficient reason for withdrawing the agent's appointment:*

10 hogs, \$1.50; 15 hogs, \$1.75; 20 hogs, \$2.00; 25 hogs, \$2.25; 30 hogs, \$2.50; 35 hogs, \$2.75; 40 hogs, \$3.00; 45 hogs, \$3.25; 50 hogs, \$3.50; 55 hogs, \$3.75; 60 hogs, \$4.00; 65 hogs, \$4.25; 70 hogs, \$4.50; 75 to 85 hogs, \$5.00; 90 to 100 hogs, \$6.00. or over 100 head, add the stated charge for each number.

In cases where the distance is great, special arrangements as to charges may be made between the owner and the agent for doing the work.

#### INSTRUCTIONS.

The hypodermic syringe for administering hog cholera serum should be of about 20 to 30 cubic centimeters capacity and should have rubber fittings so that it can be thoroughly disinfected by boiling.

It is suggested in all cases where the agent is preparing to comply with an owner's request for the administration of serum, that arrangements be made beforehand so that the work may proceed with the greatest dispatch. The owner should be requested to have his hogs penned previous to the arrival of the agent and should furnish at least two men to catch and hold the hogs, as the operator must keep his hands and syringe clean and free of dirt. This he can not do if he handles the hogs.

The serum is to be injected according to the following dosage:

Weight of pigs.	Dose to be given.	Weight of pigs.	Dose to be given.
Small pigs .....	10-15c.c.	225-275 pounds .....	45c.c.
30- 50 pounds .....	20c.c.	275-325 pounds .....	50c.c.
50- 75 pounds .....	25c.c.	325-375 pounds .....	55c.c.
75-125 pounds .....	30c.c.	375-425 pounds .....	60c.c.
125-175 pounds .....	35c.c.	425-475 pounds .....	65c.c.
175-225 pounds .....	40c.c.	475-525 pounds .....	70c.c.

For sick hogs double the dose. In all cases of large doses, small quantities in several places.

The injection is made under the skin on the inside of the thigh where the skin is loose and where there is least fat. The serum should be poured into a cup which has

been previously sterilized with boiling water. This cap should be covered to keep out dirt and flies. Before each puncture with the needle the same should be dipped into a solution of formalin, one to four parts of water, so as to disinfect the wound made by the needle and thus prevent abscesses. When the day's work is done, the syringe and needles should be thoroughly washed free of all blood and then boiled for a minute or two. The syringe, however, should not be suddenly immersed in hot or boiling water. After this boiling, it should be taken apart, the rubber plunger and needles dried and greased with carbolyzed vascline. By careful attention to these details a syringe will last indefinitely.

#### PROCEDURE.

When an owner finds or suspects that any of his hogs have hog cholera, he should communicate at once with the State Board of Health at Jacksonville, or with the hog cholera agent in his county, furnishing information as to the number of hogs, status of the disease, location of animals, etc., as prescribed by the application form issued by the Board.

Where there is a hog cholera agent in the county arrangements can be made at once for the work. In other cases the Board will detail one of its Veterinarians to the point and the work expedited as much as possible.

In applying for serum or its administration, or in reporting outbreaks of cholera, if the telegraph is used, the message should not be sent collect. This expense is to be borne by the owner or agent.

#### AGENTS.

Names and Post Office addresses of Agents of State Board of Health and who are authorized to supply and administer Hog Cholera Serum:

County.	Name.	Postoffice.
Alachua.....	G. A. Byles,	Windsor.
Alachua.....	J. O. Frederick,	Alachua.
Alachua.....	M. F. Studstill, R. F. D. No. 3,	Alachua.
Alachua.....	Dr. E. R. Flint,	Gainesville.
Alachua.....	J. B. Smith,	Newberry.
Baker.....	R. C. Crews,	Macleenny.
Baker.....	W. E. Schoch,	Macleenny.
Bradford.....	L. J. Wynu,	Hampton.
Bradford.....	Theo Tison,	Starke.
Galhoun.....	J. L. Griffin,	Blountstown.
Columbia.....	Dr. B. D. Jordan,	Lake City.
Citrus.....	Dr. Puterbaugh,	Hernaudo.
DeSoto.....	A. K. Albritton,	Limestone.
DeSoto.....	Jas. S. Goff,	Punta Gorda.
DeSoto.....	Dr. G. A. Gavin,	Fort Green.
DeSoto.....	H. B. Rainey,	Wauchula.
Escambia.....	Walter H. Johnston,	Pine Barren.
Escambia.....	J. L. Godwin, R. F. D. No. 1,	Atmore, Ala.
Gadsden.....	D. D. Edwards,	Gretna.
Gadsden.....	J. B. Ball,	Quincy.
Gadsden.....	W. D. Richards,	Express Greenshoro, Jnniper.
Gadsden.....	M. E. McCorquodale,	Havana.
Gadsden.....	J. L. Shepard,	Greensboro.
Holmes.....	H. D. & J. K. Brock,	Bonifay.
Holmes.....	Dr. D. G. Milton,	Westville.
Hamilton.....	Dr. J. H. Gorbett,	Jasper.
Jackson.....	Dr. J. G. Phillips,	Marianna.
Jackson.....	W. W. Wester,	Inwood.
Jackson.....	A. J. Brunson,	Sneads.
Jackson.....	A. M. Singletary,	Graud Ridge.
Jefferson...Dr. W. H. Walker,	Express Aucilla,	Lamont.
Jefferson.....	S. V. Coxetter,	Lloyd.
Jefferson.....	G. C. McGall,	Monticello.
Jefferson.....	Dr. W. N. McLeod,	Aucilla.
Lafayette.....	M. J. Fowler,	Day.

County.	Name.	Postoffice.
Lafayette.....	J. D. Johnson,	Steinhatchee.
Lafayette.....	J. M. Gornto,	Mayo.
Lake.....	J. M. Walton,	Lady Lake.
Lee.....	W. H. Towles,	Fort Myers.
Leon.....	T. M. Atkinson,	Tallahassee.
Levy.....	W. E. Brown,	Raleigh.
Madison.....	A. B. Sever,	Ebb or Sirmana.
Marion.....	S. H. Gaitskill,	McIntosh.
Marion...C. R. Tydings,	Dist. Agt. for	Emergency.
Marion.....	Dr. W. H. Counts,	Ocala.
Marion.....	W. L. Martin,	Sparr.
Marion.....	R. F. Rogers,	Conner.
Marion.....	Dr. S. H. Blitch,	Blitchton.
Orange.....	Dr. B. D. Wienenga,	Orlando.
Pinellas.....	Dr. W. T. Tanner,	St. Petersburg.
Polk.....	A. O. Graddey,	Bartow.
Polk.....	R. L. Young,	Mulberry.
Putnam.....	J. P. Newbeck,	Palatka.
St. Johns.....	Dr. Dolan,	Hastings.
St. Johns.....	H. B. Paris,	St. Augustine.
St. Johns.....	Dr. F. S. Whitney,	Elkton.
Santa Rosa.....	J. W. Urquahart,	Milton.
Santa Rosa.....	J. R. Miller,	Milligan.
Suwannee.....	M. A. Best,	Branford.
Suwannee.....	C. P. Odom,	Branford.
Suwannee.....	A. S. Hogan,	Welborn.
Suwannee.....	Dr. J. H. Reynolds,	O'Brien.
Taylor.....	Barney O'Quinn,	Perry.
Walton.....	Alex McRae,	Floral, Ala.
Walton.....	Prof. H. J. Rogers,	DeFuniak Springs.
Waukulla.....	C. K. Allen,	Sopchoppy.

## **TOMATO GROWING IN FLORIDA.**

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The Tomato (*Lycopersicum esculentum*) belongs to the order Solanaceae or Night-shade family which contains something over twelve hundred species, among which are three of our most valuable and important vegetables—the Irish potato, the tomato and the egg-plant. It also includes the red pepper, and the narcotics, such as bitter-sweet, belladonna, Jamestown or “Jimson weed,” the tobacco and others.

The Tomato was first introduced into Europe from South America in 1596, but for many years it was planted only as an ornament to the flower garden. It came into use very gradually in the preparation of sauces and soups, and has only attained its popularity as a table vegetable in comparatively recent years. Its importance as an article of commerce really dates back little more than twenty years, and as compared with the present it was then indeed of small proportions, though at that time the increasing annual crop was watched in fear and much suspicion as to the probable effect on the markets. At present in Florida it exceeds in volume and value nearly four times that of the next most important vegetable crop (Irish potatoes). In 1910 the crates marketed were 2,336,948, the net value of which was \$2,528,620. The Tomato, therefore, is Florida's greatest vegetable crop, standing next in importance and value to the Orange.

### **SELECTION OF SOIL.**

The Tomato will resist drought better than it will too much rain, in fact it stands drought better than most vegetables; the soil therefore best adapted to this crop is a

good well drained sandy loam. The Tomato is not a gross feeder; it seems to prefer a light soil to one that is too fertile, or that has been made rich with heavy animal manures; cow manure in moderate quantities is good, but chemical manures in proper quantities are best in most cases.

### SEED BEDS.

We do not believe in the extreme views of some growers, who plant the seeds directly in the field, where the crop is to be produced. A seed bed is really indispensable; it makes success more certain and it should be well equipped to afford speedy and ample protection against cold, and of ample dimensions to furnish a relay of plants, if the first setting is destroyed by cold, and even a second relay is often necessary, for some times even these reserve forces have to be brought into action.

It is best to have three or even four good, large plants provided in the seed bed for every one the planter expects to raise to maturity. This is the true wisdom of the foresighted and provident grower, who, by his strong management will force success against obstacles before which weaker men will go down in defeat. The tomato is a feeble plant in its infancy and an easy prey to frost and mysterious fungus enemies—yet, if we faithfully defend and feed it, it will yield the dollars at last more generously than anything else except the prodigal orange.

The seed-beds may be of light, rich, sandy loam, raised a few inches above the level of the ground. It is considered best to have them six feet wide, and as long as desired, running east and west. Have on the north side a tight board wall, three feet high, on the south side half as high, with tightly boarded gables. This will give a shed-roof with light rafters nailed across, on which to roll down the roof of cloth, tacked to rollers anywhere from thirty to fifty feet long.



Let the rafters have no projection, so that the cloth may drop down snugly against the south wall. Such a covering of cloth alone will protect the plants against a white frost; a sheet iron coke burner, such as the pineapple men and orange growers use, placed every fifty or seventy-five feet, will protect them against a black frost.

Make drills crossways of the beds, three to four inches apart, sow the seed in thinly, say about two or three to the inch. Cover three-fourths of an inch. *Firm the soil* with a board or light roller, and water with a light spray, as may be needed to keep the soil moist, but be sure not to overdo it as too much moisture will cause the plants to damp off, and to grow small and slender, specially near the front and back walls of the frame. It is therefore advisable to sow the seed more thinly near the front and back than in the middle of the bed. Roll down the cover on chilly nights.

When the plants begin to have four leaves, cultivate lightly at least once a week. Pull out clumps of spindling plants where the seed chanced to fall in a bunch. Thin to three inches by cutting across the drills with a narrow hoe.

Where the plantation does not exceed a half-dozen acres, it pays to take up and reset the plants once or twice to render them more hardy and stocky. To toughen them against this removal it is recommended to reduce their supply of water for about ten days to render them somewhat dormant. This is to be continued up to the hour of removal. This may be done without fear as the tomato is very tolerant of a transfer.

#### TRANSPLANTING TO THE FIELD.

First, make ready the field two weeks beforehand. Supposing it to have been plowed in November and thoroughly cross-plowed in January, then with a two-horse plow

run out furrows four feet apart and strew in the fertilizer at the rate of 600 pounds per acre. Work in a little of the furrow slice and mix it with the fertilizer with a bull-tongue. Strew in as much more and mix again, thus giving 1,200 pounds per acre and leaving the surface level. Set the plants two to three feet apart, according to the strength of the land. Some growers prefer to manure the plants in the hill, which probably saves in the amount of fertilizer required per acre, but either plan is good, one about as good as another, and is largely a matter of choice only.

Reject rigorously all weakling plants. Leave them in the seed-bed to grow; when relieved of the crowding, they may come on and furnish a relay, if needed. Wet the ground soft and pull the plants up carefully, running the forefinger under, if necessary. Wet the rows down again to restore the level after the upheaval.

We have very little confidence in plantsetting machines with tomatoes. They are fine, and great time and labor savers in the planting of some crops, but not for tomatoes, they are too tender and easily bruised. The way is to set by hand with the best-paid class of men and not with children at all. Children are only fit to pick cut-worms. Take hold of a plant and pull; if the leaf comes off, the plant was properly set; if the plant comes up, the setting was poorly done. Caution the setters constantly against leaving airholes at the bottom; make them fill in at the bottom first, then at the top. *Firm the earth*; have an experienced man follow along; place one foot on each side of the plant; rock a little forward and throw his whole weight on his toes, opposite the plant.

Keep the plants screened from the sun, in a vessel with water enough to cover their roots. Let each setter have his own vessel of plants; take one out at a time and immediately place it in a hole punched in the ground, not exposing the roots to the air two seconds.

## CULTIVATION.

This is as simple as with corn. It may be deep and close for a few weeks, but keeping further away and more shallow as the plant advances, ceasing when the bloom-buds come.

There is little doubt that staking the plant and nipping out the terminal bud above the first cluster of bloom hastens the maturity and improves the size of the tomatoes; but it is questionable if it will pay with the present prices of labor. In a small field tended by the grower's family, it would probably be profitable. Do not prune the plants if you expect to ship your fruit to market; you will get fewer but larger fruit, but it will not pay you.

When picking the earliest fruits it should be remembered that the cold weather in the North will permit them to ripen very little on the road; hence they should not be gathered until they have begun to redden slightly. A greener one would remain hard and uneatable and rot before it would ripen. Later on, as the weather in the North grows warmer, they may be picked when they have fairly turned white, preparatory to reddening. An immature tomato removed from the plants always remains more or less tough. This objection may be remedied to a considerable extent by proper fertilizing. A tomato grown on a well-proportioned strongly mineral fertilizer will be comparatively crisp and melting in the mouth, while one produced on nitrogenous manures will be tough and wilted.

The tomato, though it is so great a crop, is well worth being treated as a fancy product. In fact, all the early produce of Florida is deserving of this distinction. Coarse, brown wrapping paper cheapens the fruit. The buyer is only too ready to take it at the grower's own estimate. Valuable packages are not wrapped in hardware paper. The best printed tissue wraps should be used, and—let the fruit also be worthy of the wrappings.

## VARIETIES.

There are such a large number of equally good varieties to choose from that one can hardly go amiss, and while at one time it was thought that only one or two kinds would bear shipment, continued improvements with new varieties have so changed these conditions that it is largely a matter of choice or personal preference as to which is best in the grower's opinion.

## BLIGHT AND INSECT.

With the tomato, as with all other vegetables in this State, no precaution against insects should be neglected; prevention is much easier than medication. The one pre-eminent precaution is to use strong tobacco dust sprinkled around the plants as soon as they are set out. Blight is also far easier to overcome in advance. Burn all the old vines as soon as the harvest is over, thus destroying the germs of blight or other diseases. It is best to plant tomatoes in rotation with crops that are affected with diseases different from the tomato, such as corn, cabbages, peppers, etc.

## FERTILIZER.

A good fertilizer for rather light soil would be composed of say—

No 1.		Per Cent.
1,000 lbs. of Blood and Bone (64-8).....	}	4 Ammonia
100 lbs. of Nitrate of Soda (17 per cent.).....		8 Available
500 lbs. of Acid Phosphate (16 per cent.).....		10 Potash
400 lbs. of Muriate of Potash (50 per cent.)....		
2,000		

State value mixed and bagged.....\$34.50

Plant Food, per ton.....440 pounds

For heavier soils, as the best class of sandy or clay loams:

4

No. 2.

	Per Cent.
500 lbs. of Castor Pomace (6-2 per cent.).....	} 4.00 Ammonia 7.70 Available 9.60 Potash
200 lbs. of Sulp. of Am. (25 per cent.).....	
900 lbs. of Acid Phosphate (16 per cent.).....	
400 lbs. of Sulp. of Potash (48 per cent.).....	
<u>2,000</u>	

State value mixed and bagged.....\$33.76  
 Plant Food, per ton.....426 pounds

## IRISH POTATO GROWING IN FLORIDA.

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The potato (*Solanum Tuberosum*) belongs to the family Solanaceae the same as the tomato, egg-plant, belladonna, etc. Solanin, the active principle, is found in small proportions and is poison to a small extent. This poison is developed when the surface turns green from exposure to the direct rays of the sunlight and is therefore unwholesome as well as unpalatable when in that condition. For this reason sprouted or greenish colored potatoes are less valuable for food even though in the process of cooking a change is effected in the composition of the tuber.

The chief organic ingredient of the potato is starch, which forms about one-tenth of its weight. According to history it was first introduced into Europe by the Spaniards from South America. It still grows wild in the mountain regions of Chili. It also has been found indigenous to Arizona and Mexico. It was introduced into England from Virginia by Sir Walter Raleigh. It is said that "The potato is one of the greatest blessings bestowed upon mankind, for next to rice, it affords sustenance to more human beings than any other gift of God." It is one of the few food products that can be consumed exclusively as a food without limit as to time with no injury to the system; it is a ration in itself that will sustain life and strength for a great while. It is a wonderful provision of nature, that the family which embraces the deadly night shade, and other very poisonous plants, should also have among its members this most useful vegetable. Of all the crops of the truck farmer, the potato is the one which is always saleable at more or less remunerative prices, its general use among all classes and

nativities of population, makes it perhaps the most universally planted vegetable known. The potato tuber is not a root, as it has neither root hairs itself, nor has the stem which connects it with the stock either fibrous roots or hairs and, therefore, does not provide the plant with nourishment; neither is it a seed any more than a stalk of sugar cane is a seed, both having eyes. The potato is simply an enlarged underground stem, the eyes of which are also the buds. As is well known the larger number of the eyes are on the end of the tuber opposite from where the stem connects with the plant. When the potato has dried out to a considerable extent and the atmospheric conditions are favorable, the eyes or buds will swell and begin to grow or sprout out. Until roots put forth these shoots are dependent on the moisture and starch in the tuber for their support, the same as seeds: these eyes, however, are independent of each other, which enables the cutting of the tuber into numerous parts for planting. If the tuber and eyes are both sound, the shoots will grow and make healthy plants, provided conditions are favorable, whether they be planted whole or in pieces with single eyes.

In cutting potatoes to single eyes, the cutter should commence at the stem end, where the eyes are fewer in number, and slice the pieces to single eyes each, in such a way as to distribute the greatest amount of the tuber substance possible with each piece. A good rule is, cut all medium to large potatoes to single eyes whether sprouted or not. Small potatoes may not all mature enough to grow strong sprouts, but if a small potato is matured enough to put forth strong sprouts, cut it also to single eyes for very little substance will supply their support, but if the potato has not sprouted it may be planted whole without much danger of its putting forth more than one stalk.

A potato delights in a comparatively cool atmosphere and moist soil and therefore thrives best in cool months of the early spring and fall. Mulching with leaves to retain moisture often produces a good crop even if the season is very dry, as the vegetable matter serves to conserve the moisture in the soil. The soil best adapted to this crop is a rich sandy loam or a moderately light clay loam underlaid by a sub-soil of a character to retain moisture. It should be plowed deeply and thoroughly pulverized. Plow and barrow until it is put in a thoroughly good condition and well rotted stable manure may be applied broadcast, should there be a lack of humus in the soil, but in the event the stable manure is applied, it should be done for spring crops early in the season or very late in the fall months. If too much green manure is applied it is apt to produce scab. The land should be broken a month or six weeks before time for planting. It should be broken with a two-horse turn plow and subsoiled if possible. Into these furrows put a complete commercial fertilizer at the rate of 800 to 2,000 pounds per acre, depending on the character of the soil. Mix this with the soil and subsoil by running two furrows with a long narrow hall tongue plow so as to thoroughly mix the fertilizer with the soil, then let stand for ten to twelve days before planting. Cut the tubers as previously stated and plant when ready, covering about four inches deep.

#### VARIETIES.

The best varieties for planting in the South and especially in Florida, are the early and extra early varieties, such as the Bliss' Red Triumph, Bliss' White Triumph, Irish Cobbler, Improved Rose Number 4, Dixie and Extra Early Sun Light. These are the extra early and the best for growing in Florida for the first crop. Second earliest can in some sections be grown with profit, but not generally throughout the State for commercial purposes. Beauty



of Hebron, Early Rose and Carmen No. 3 are favorite second early varieties. Burbank and Peerless are late standard varieties for little Inter growing.

The time of planting potatoes in Florida depends upon the section of the State. In the far southern portions they can be planted as early as December growing later up to March as we go farther north, indicating the change necessary to conform to the seasons and location, the difference being about ten to twelve days for each 100 miles.

The cultivation of potatoes is very similar to that of corn. Plow deep at first and shallower with each working until ready to lay by. In this way the roots that feed the plants will not be troubled and the process of making the tuber will not be interfered with. When the vines turn yellow the tubers are ready to dig which can best be done with an ordinary pronged potato hoe and the man. In some of the light sandy soils potato diggers are successfully used and can be successfully used in most Florida soils. The digger should not be permitted to pile them roughly into piles or throw them roughly into the baskets. The more carefully a vegetable is handled the better it will strike the public eye and consequently the more money it will bring the grower. Whatever may be its size, no cut or bruised potatoes should be put in the first quality, but may be in the culls. The barrels or baskets should be well shaken down and so full that the heads have to be pressed down. It is better that they should be double-headed and well coopered. The potatoes should be classed as first and second quality; and the culls, the small tubers, should be kept for feed purposes or seed as suggested elsewhere. Cloudy weather is best for digging the crop, as potatoes should not be exposed to the hot sun and if picked while warmed by the sun they are apt to rot before reaching the market. If dug during the sunshine, they should be gathered as they are dug and carefully

emptied into baskets or barrels and promptly hauled from the field or shaded from the rays of the sun. The potato is subject to various insects and diseases, but in this country a Florida potato grower has a great deal less to combat in this respect than those further north and west, but it is unsafe to place full reliance in this fact because there is no certainty as to when a disease or insects may attack the plant unsuspected. The potato scab is the greatest trouble to the potato grower in Florida. This is a fungus disease and can be prevented in a large measure by treating the pieces of potato before planting with solution of corrosive sublimate or formalin and a good plan to prevent this disease is to burn the vines wherever there is any appearance of the disease about them. The solution for treating this disease is corrosive sublimate, 4 ounces to 30 gallons of water. Soak the seed, after being cut, for one hour to one hour and a half, then drain. The formalin solution is one pint to 30 gallons of water. The potatoes are immersed in this latter solution for about two hours. A good plan to use in immersing potatoes in these solutions is to put them one-half bushel or so at a time in a gunny sack then lift them out and let the water drain back into the vessel. Any other clean sack will answer the purpose if desired. As soon as this is done spread them out and let them dry so that they will dry quickly and thoroughly. Be sure that the solutions are not too strong or the buds or eyes will be damaged.

There is also a disease known as the late blight which comes about the time the potatoes are beginning to mature. This disease can be controlled by spraying with Bordeaux mixture. In a former Bulletin, the July number, 1911, the formula for all sorts of sprays, the Bordeaux included, will be found.

## FERTILIZERS.

The following formulas are adapted practically to all soils and sections in the State. The planter can choose whichever seems to suit his soil best:

## No. 1.

	Per Cent.
1,000 lbs. of Blood and Bone (6½-8).....	4 Ammonia 8 Available 10 Potash
100 lbs. of Nitrate of Soda (17 per cent.)...	
500 lbs. of Acid Phosphate (16 per cent.)...	
400 lbs. of Muriate of Potash (50 per cent.)..	

2,000

State value mixed and bagged.....\$34.50  
 Plant Food, per ton.....440 pounds

## No. 2.

	Per Cent.
500 lbs. of Castor Pomace (6-2 per cent.)...	4.00 Ammonia 7.70 Available 9.69 Potash
200 lbs. of Sulp. of Am. (25 per cent.).....	
900 lbs. of Acid Phosphate (16 per cent.)...	
400 lbs. of Sulp. of Potash (48 per cent.)....	

2,000

State value mixed and bagged.....\$33.76  
 Plant Food, per ton.....426 pounds

## THE HOME DAIRY IN FLORIDA.

BY C. K. MCQUARRIE.

*Assistant Superintendent Farmers' Institute.*

The live stock industry in our State is in a backward condition. Why this should be so is a question that seems hard to answer. There is no section of Uncle Sam's wide domain where feeds for live stock can be produced in greater variety and in larger quantities than right here in our State. Every farmer who has embarked in this industry in Florida, either for beef or dairy products, gives the same report of low cost of production along his special line. The live stock industry is the rock bottom foundation of agricultural prosperity the world over. Until the farmers of our Southland embark in it to the fullest extent, our agricultural prosperity as a section will not be of the highest grade. Corn alone, or any other single specialty crop production, such as cotton or tobacco, never has made a country universally prosperous, and never will. We must have the live animal on all our farms, and in sufficient numbers to maintain and increase our soil fertility in a way that the contents of a "guano" sack never can. The importance of the live animals on the farm as a means of increasing agricultural prosperity is clearly indicated by the history of nations. A comparison of the types of live stock farmers found in the British Isles, Denmark, and Holland, with the peasant wheat growers of Russia, and the rice farmers of India, is ample to illustrate the close relation between live stock and agricultural prosperity.

### ADVANTAGES OF LIVE STOCK FARMING.

Live stock farming necessitates rotation of crops and seeding down some of the land for pasture. It requires activity and skillful management the year round. It compels the farmer to keep an outlook on market conditions, at both the buying and selling ends of his business. It brings him into contact with his fellows as buyer and as seller. It enlarges his outlook on the world, and broadens his sympathies beyond the mere routine of sowing, cultivating and reaping. Mere grain raising or special crop farming, on the other hand, leads to continuous cropping, in most cases without proper crop rotation. It does even worse, it eliminates the meadows and pastures. It involves a strenuous life for a short season of the year, followed by a long period of inactivity. It tends to create an itinerant class of agricultural laborers, and encourages tenant farming, rather than permanent farm ownership. It fosters the soil-robbing spirit. Corn farmers, wheat farmers, cotton farmers, rice farmers, and all grain farmers as a class are strongly led to overdraw on their soil fertility account. The men engaged in that class of farming, as a rule, show but a small interest in the permanent prosperity of agriculture. The history of agriculture in all countries in the world shows that the live stock producers have taken a leading part in maintaining and increasing agricultural prosperity, and as a class they can always be relied upon to lead the van of progress wherever their lot may be cast.

### ADVANTAGES OF FLORIDA FOR DAIRYING.

The money sent out of the State every year for dairy products is away up in the millions of dollars. This money could well be kept in the different communities, if we had enough live stock farmers. The protein feeds necessary to feed dairy stock can be grown here in pro-

fusion and in great variety. Our cowpea hay, analyzing 16 per cent protein, is equal pound for pound to the best bran on the market. Our velvet bean hay, with almost as high a protein content as the cowpea, and our never-failing beggarweed, are also equal to any other protein feeds. Then we have the soy bean, the Kudzu, and a few others that go to make a varied palatable feed, such as a dairy cow wants. We also have carbohydrate feeds in abundance, such as Japanese cane, sweet potatoes, cassava, and others, that make our dairymen independent to a certain extent in the matter of feeds from outside sources.

Another advantage we have in the South over any other section of the country is our climate. We do not have to supply an extra 25 per cent. of feed for eight months of the year to keep up the natural heat of the animal as is the case during the cold weather that prevails in the northern States. Another advantage that we have is freedom from flies and insects of all kinds. While it may be difficult to believe, it is nevertheless a fact that in Florida the flies do not become the pest to cattle that they do in the northern States, and it is a rare occurrence to see cattle tearing around in a half-crazed condition trying to get away from their tormentors. True we have the tick, which if allowed to get too numerous becomes a pest, but it is easily controlled if the proper methods are used, such as keeping cattle well-salted and well-groomed as all stock should be. We are also in a well-watered section of the United States, which is an important consideration for live stock.

### THE BEST BREED.

Every dairyman has his own favorite breed, but in Florida the Jersey seems to be the most popular. There are several reasons for this; but the principal one that concerns the man that makes butter is that the fat glob-

ules in the Jersey cow's milk are larger than in the milk of the other breeds. The butter made from the Jersey cow's milk stands up better in warm weather, and will not turn oily as soon as that from other breeds, while its texture is good all the way through. From personal experience I prefer a high-grade Jersey, about seven-eighths Jersey and one-eighth native. This grade of cow will give you a hardy animal that is a good forager when turned to pasture or on the range. Its milking capacity will, in most cases, equal that of the pure stock, and as a general rule it will produce milk at less cost than the pure Jersey. Such animals do not require the same care and pampering as the thoroughbred, and cold and wet spells of weather do not affect their milk productions so much. Anyone wishing to get good results and build up a herd of good animals can easily do so by keeping a full blood Jersey bull, and so grading up his herd. This bull should be changed every four or five years to prevent in-breeding. Every dairyman should raise his own cows by selecting the best of his heifer calves. By doing this he can build up a herd of a certain type, and can select the best milkers as they develop their milking qualities, while those not coming up to the mark can be sold off.

### TRAINING THE CALVES.

To get the best results and develop good milkers, the calves should not be allowed to run with the cows. When the calf is dropped it should be taken away and put in a dry dark stall to dry off and get up its strength by resting. It should not be disturbed for at least 24 hours, and then some of its dam's milk may be offered it to drink. If slow to learn, the middle finger dipped in the milk can be given it to suck. If, however, it refuses to drink or suck, let it alone for about 12 hours, when it will readily take what you offer it. This seems at first rather a cruel practice, but in the end it is the best method to pursue.

A cow that is sucked by her calf will never develop into a good milker, because she will taper down her milk production as far as possible to the calf's needs, and as the calf never can suck her dry, her flow of milk will gradually decrease to the amount which the calf takes. On the other hand, if the cow is milked, she will naturally develop her full milking capacities in proportion to the feed she gets, and will naturally look upon her milker as the one she is providing for. It is right here that the good dairyman that knows his business seldom fails to develop the cow's full milking capacity by the proper treatment and judicious feeding necessary at this time in her life.

### THE KIND OF BARN.

One great consideration in connection with dairying in this State is that we do not require the costly and elaborate barns that are needed in the northern States. A lean-to on the south side of the regular barn, entirely open on the south, is all that we want. The stalls should be made 4 feet wide and  $4\frac{1}{2}$  feet long, with a cement gutter running behind the cows to save all the manure made, both liquid and solid. The floor on which the cattle stand, however, should be made of board, and so should the platform outside the gutter.

An air-tight locker or cupboard should be provided in which to keep the milk as each individual cow is being milked, and then when the milking is done the separating should be started right away, the cream put where it belongs and the skimmed milk fed to the calves and pigs. If the dairy is located near a market where the milk can be hauled twice daily, the milk trade is the most profitable; but the dairy a few miles from town has to cater to the cream or butter market, and to get a high-grade article a cream separator must be used. Cream produced by the gravity system is not of as good quality, and the loss in



butter fat is greater, since much of the cream is not obtained from the milk. With the separator this is avoided. Separator cream, being of a smooth velvety texture, makes a high-grade butter, and the butter fat is completely removed from the milk, thus making the industry more profitable. It has never been successfully contradicted that a man with five cows or over can pay seventy-five dollars for a cream separator and be certain of getting his money back in a year from the increased yield of cream obtained by the separator method over the old gravity system of cream collecting.

### BUTTER-MAKING.

It is generally supposed by those who have not studied the matter that we cannot make solid hard butter in Florida in the summer time without the liberal use of ice. This is a mistake, for the natural temperature of the well water, more particularly in our clay lands, is never over 66 degrees and often 62.

This in itself shows us conclusively that we are in a dairying section of the country. And having wells dug to cool the cream and cylindrical cans to hold it, we can churn the cream into butter under the most favorable conditions. The required temperature can be had by keeping the cream in a well; and by using as a starter a tablespoonful of buttermilk from the last churning we can get the necessary acidity to make high-grade butter.

It is a well known fact that when one uses ice for cooling purposes the supply has to be kept up or the butter will get oily. Cream cooled with water at the proper temperature gives a firmer grade of butter than when ice is used, and the butter stands up better, that is to say, it is not so apt to get oily and seldom does so.

The kind of churn used influences the quality of butter very much. A barrel churn is best. One does not want a

churn with any devices on the inside to break the grain of the butter, as a dasber in the churn will do. These barrel churns are fitted with small glass disks on the lid so that one can tell when the butter has come. Good butter is often spoiled by churning too long. One of the greatest mistakes in butter making is to keep churning so long as to gather all the butter in one lump. This should never be done, since it can never be washed thoroughly under those conditions, and in an effort to wash the buttermilk out of it the grain of the butter is spoiled making it salty and oily. Churning should always be stopped when the grains of butter are about the size of a sorghum seed. The buttermilk is then run off, and a couple of gallons of clear water added. The churn is then turned a dozen revolutions or so and this water run off. It will then be found that the residual buttermilk runs off with it, not being mixed up with the butter as it would be if the butter was gathered up into a lump. The salting of the butter is of importance. The finest grade of dairy salt is necessary. This is easily obtained from dairy supply houses. The market calls for butter salted at the rate of an ounce of salt to a pound of butter. As a gallon of cream will produce about three and a half pounds of butter we will know what amount of salt to use without having to weigh the butter. The salting should be done immediately after the butter is washed, sprinkling the salt over the butter inside the churn and mixing it with a wooden paddle. Then leave it in the churn for a couple of hours, when it can be taken out and put on the butter worker to press out the remaining water and mix the salt. It is then ready to print. The print should be wrapped in parchment paper bearing the name of the dairy and owner.

With fifteen years of experience in butter-making in Florida we can say we never have found much trouble in producing the biggest grade of butter all the year round, and there is always an unlimited demand for it by the

best families in the community. This trade always calls for print butter put up in pound prints or less, and when one uses his own special mold there will always be a sure market.

### CONCLUSION.

There are, however, a few minor points along the line of successful dairying that some of our farmers are perhaps not prepared for. A dairyman's temperament must be such that he is universally kind to animals. Rough treatment and loud talking in the dairy barn do not pay. The milk cow is a lady in her own particular sphere, is the highest type of the brute creation, and she must be treated accordingly. Absolute cleanliness must be observed everywhere, the cows groomed every day, and before beginning milking their udders must be washed and wiped with a cloth. The man that is not prepared to attend to these important matters had better let dairying alone, and take up some branch of farming more suitable to his make-up. And every dairyman must not overlook the fact that strict attention to business is the keynote to success. Dairying means 365 days in the year of constant and careful work twice a day. But at the same time it means a better system of farming, maintaining and increasing the fertility of the soil, and above all it means more dollars per acre than any other line of farming that can be engaged in.

## JAPANESE CANE.

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BY JOHN M. SCOTT,

*Animal Industrialist and Assistant Director  
Experiment Station.*

### INTRODUCTION.

For the successful production of live stock it is important to have an abundance of feed and forage at all times. If the natural grasses do not afford this, we must plan our crop rotation so as to supply the feed when needed. It may be that the natural grasses will supply sufficient feed for all live stock, except for a short period during the winter months or during a severe drought. It is just at such times that the animals most need our help. If we fail to supply sufficient food to young growing animals, development is retarded or growth stops. We get as a result undersized and poorly developed beasts, and often what are commonly known as runts. Such stunted animals never develop into as good live stock as do those individuals that are kept growing from birth to maturity.

During the past ten years the numbers of cattle in this State have doubled. On January 1, 1900, we had 412,820 head of cattle. On January 1, 1910, there were 807,000 head of cattle. If the number of cattle should increase as rapidly in the next ten years as in the last ten years, we shall own one million and a half head in 1920. Such a rapid increase would require that our farmers take steps to produce enough forage to properly feed the increment. There will probably be a like increase in hogs and sheep, and also a considerable increase in the number of horses

and mules. The needed extra supply of forage can easily be obtained by the growing of Japanese cane. There is no other crop that we can grow that will produce such a large yield of forage at so small a cost.

Florida is more of a live-stock State than many realize. On January 1, 1910, there were 807,000 head of cattle, 98,000 sheep, and 456,000 hogs. These are all forage-eating animals. To supply the needs of all these animals we must provide forage of some kind from November to March. Japanese cane is a crop that supplies a large amount of roughage at the very time of the year when the natural pasturage is limited. The want of an abundant supply of forage is one of the hindrances to the production of good live-stock in Florida. Stockmen have been negligent in supplying the necessary food to maintain their live-stock during the winter seasons and during the times of severe drought. To produce a good grade of live-stock an abundance of good feed must be supplied. The best forage to grow is one that will produce the best yield per acre, and that will supply the largest amount of nutrition in the feed. As well as being nutritious, it must, of course, be palatable.

### HISTORY.

Japanese cane was introduced in Florida from the Louisiana Sugar Experiment Station some sixteen or eighteen years ago. The Louisiana Station grew it for a number of years for comparison with other varieties of sugarcane as a source of sugar and syrup. It is rather probable that the Japanese cane was imported from Japan into Louisiana by General LeDuc, U. S. Commissioner of Agriculture, 1878. (There is, however, also a possibility that it came from Brazil). However, the question as to where it came from is of secondary importance. The question of most importance is how we can so handle

Japanese cane as to obtain the best results in feeding it to our live-stock.

### USES.

Its chief value to the farmers of Florida is as a forage crop for the feeding of live-stock. It may be used as silage, winter pasture, or dry forage. When first introduced to Florida, Japanese cane was grown for the production of syrup. In most sections of the state and under the usual conditions, the regular sugarcane is much more satisfactory as crops for syrup production. This is because the Japanese cane is harder, and requires more power in grinding. It is also more difficult to strip, which increases the cost of stripping. However, as regards the quality of the syrup, there is but little difference between the regular sugarcane and Japanese cane. The yield of syrup per acre from Japanese cane will vary from 150 to 500 gallons.

The locality best suited for the growing of Japanese cane will be all Florida, southern Georgia, Alabama, southern Mississippi, Louisiana and southern Texas. Any section in which the velvet bean will mature seed will be found a good place to grow the Japanese cane. This will be up to 200 to 250 miles north of the Gulf of Mexico.

### PASTURE.

Japanese cane furnishes good pasturage from the middle of November to March. Cattle waste but little of it when pastured. They first eat off the green blades, then the tender joints at the top, and continue to eat from the top until there is nothing left but the short stubble. It should not be pastured late in the spring. If pastured after growth starts in the spring the cattle or hogs will eat off the new growth and soon kill out the plants. It is not advisable to pasture later than March 1, or after new growth begins in the spring.

## SILAGE.

Japanese cane makes a good silage. It keeps well, is relished by cattle, and the yield that can be secured makes it one of the cheapest and most economical crops that the Florida farmer can grow for silage. It has been used in feeding experiments with the dairy herd at the Experiment Station with quite satisfactory results. The cost of silage from this crop should not exceed \$1.75 or \$2.00 per ton. As compared with sorghum or corn silage the cost is about one-third less for Japanese cane silage.

## DRY FORAGE.

Japanese cane will be found a valuable crop for dry winter forage. It is an easy crop to cure and the loss in storage is small. If it is stored in a barn or shed there will be hardly any loss. At the Experiment Station we have stored it in a barn in November and December and kept it until the following June and July. Six months after harvesting there was practically no loss; and when run through a feed cutter it was relished by cattle, horses and mules. If barn or shed room is not available, it can be stored in the barnyard and fed out as wanted. But with this method the loss will be considerable. It will be found profitable to put up a temporary shed under which to store the dry forage. This need not be an expensive shelter. It may be made of any material that will shed rain. It will perhaps be advisable when stacking the forage to set the butts of the canes on the ground. In this way the canes absorb some of the moisture from the soil, and will not dry out so much.

Japanese cane was used as roughage in one feeding experiment in beef production. In this test the following feeds per 1,000 pounds live weight were fed: corn, 12.50; velvet beans in the pod, 18.75; sweet potatoes, 20.8; and Japanese cane, 12.50 pounds. During a period of sixty

days the steers made a daily average gain per 1,000 pounds live weight of 6.5 pounds, at a cost of 4 cents per pound of gain.

### SOIL.

Japanese cane is a crop well suited to a variety of soils. Good hammock land will no doubt produce the heaviest yields. But even the high pine lands will give good returns when properly fertilized. On swampy muck land Japanese cane will make a fairly good growth. On such land the growth will be greatly increased by an application of lime (ground limestone, or burnt lime). The amount of this which it is necessary to apply will depend upon the amount of acid in the soil, and will vary from 2,000 to 6,000 pounds of ground limestone, or one-half these amounts of air-slacked lime per acre. An application at the rate of 2,000 pounds of ground limestone per acre on high pine land on the Experiment Station farm increased the yield to the extent of 10.37 tons per acre during the season of 1909.

Every farmer in Florida should grow a few acres of Japanese cane, whether he has the class of soil best suited to it or not. If it is not the best soil, Japanese cane will produce as heavy a yield as will any other crop that can be grown on the same soil, or even a heavier yield. High pine land properly fertilized will give a yield of 15 to 20 tons per acre. Good hammock land will produce yields beyond these figures.

### SAVING SEEDCANE.

Japanese cane is a perennial, and one planting will last many years if properly handled. This in itself causes quite a saving in the expense of growing the crop. In fact, it reduces the annual cost of production by about 50 per cent.

Japanese cane is propagated by cuttings of the canes



or by divisions of the stools. The cheapest and most economical way of propagating it is by cane cuttings. Therefore care and attention must be given to the saving of the seedcanes. Poor seed-canec, like poor seed, result in poor stands and unsatisfactory yields. The seed-canec should be selected and cut before there is danger of frost, so as to insure soundness. The buds will only stand a very slight frost without injury, and it is not safe to risk possible exposure to frost. The canec should be cut and banked before there is any likelihood of the first fall frost. The date for this will, of course, vary in different sections of the State.

Almost every farmer has his own method of banking his seedcane. Perhaps one method is about as good as another. The important facts to keep in mind are: The canec should be covered sufficiently deep to protect them against frost; the bank should be situated so as to get perfect drainage; if there should be standing water or abundant moisture, the canec are likely to rot; if the soil about the beds should become dry the canec may take the dry rot, and a large amount of the seed be lost. It is, therefore, important that we get the proper conditions as to moisture in the bank where we store our seed-canec. It will be found better to make two or three small beds than one large one. It would be well to bank more canec than you expect to use for planting. There is always some possibility of loss from various causes. Sometimes the loss may not exceed 10 per cent. while at other times it may be as high as 25 to 50 per cent.

#### CANE FOR PLANTING.

The number of canec required to plant an acre will depend upon the distance between the rows, the distance at which the canec are dropped in the row, and the length to which the canec are cut. Our experience has shown that, putting the rows 8 feet apart, 3,000 whole canec are suffi-

cient to plant an acre; and if good seed is used, are enough to give an excellent stand. Select only healthy canes, and reject all that are green and unripe. Plant in rows eight feet apart, cut the canes in pieces having three to four eyes to the piece, and drop them in a double line.

Some farmers drop the canes in a single line from 12 to 18 inches apart in the row. By this method of planting it will only require from 1,000 to 1,500 canes to plant an acre. The disadvantage is, however, that a thin stand will be obtained, which will result in a small yield of forage. This small yield of forage will not only be for the first year, but there will be a light yield for several years. It is nearly impossible to fill in the missing places properly. Where new canes are planted in the missing hills, it will be found that they either make no growth or a very unsatisfactory one. The old established canes have such an extensive root system and draw so heavily upon the plant food and soil moisture, that the new canes have little chance to make any growth.

It is very important that a good stand of canes should be obtained at the first planting. If only a half or two-thirds of a stand should be secured, it will follow that one-third to one-half of the crop will be weeds. For weeds will grow up between the canes unless the stand is thick enough to smother them out, and it costs less to cultivate an acre that will produce 20 tons of cane than one of half that yield. Hence we should obtain at the start the very best possible stand.

#### PREPARATION OF SEED-BED.

Before planting, the ground should be plowed broadcast to a depth of six inches. Plow under all vegetable growth on the land. As soon as the land is plowed it should be harrowed with the tooth harrow. Harrow it twice if necessary so as to put the surface in good tilth.

The rows can be laid off by the use of the marker, which is made of 2 by 6-inch lumber, the runners being set on edge at the distance apart that the rows are wanted and then braced sufficiently to keep them in place. A tongue is attached to the cross-brace in front, and a guide marker is attached at the side, at the proper distance to mark the next row.

For opening up the furrow in which to drop the seed-canes the disk cultivator will be found most satisfactory. The beginner, however, is likely to have trouble until he learns how to set the disks. In throwing out the rows, they should be set close together, so as to leave as narrow a ridge as possible in the bottom of the furrow. The cultivator should be set to run quite deep. If not, when the canes are covered the ground will be left in ridges, instead of being level. In covering the canes it will be found necessary to set the disks as far apart as possible, so as to give room for the canes between the disks. When the disks are set close they will catch the canes, which, instead of being covered, will be thrown out on the top of the bed. The use of the disk cultivator for this work will reduce the cost of planting by 25 to 40 per cent., which means much in the total cost of production.

### PLANTING.

Just when to plant the seed-canes in Florida depends on the locality. Some prefer to plant in the fall, at the time of selecting the canes. This method reduces the expense by the omission of the cost of banking. Fall planting is perhaps not well suited to all parts of the State. In the northern and western portions of the State, where the winters are more severe than in the southern part, there is likely to be a greater loss of seed-canes during the winter season. Hence if fall planting should be practiced, the result may be an unsatisfactory stand. If the seed-canes are banked and kept till spring, then only

first-class cane will be planted. This will insure a good stand. Fall planting would be advisable for central and south Florida and spring planting for north and west Florida. For fall planting, November 10 to 20 will perhaps be the best time. For spring planting, the month of March will be the most satisfactory. All territory north of Gainesville should practice spring planting. All south of Gainesville may find fall planting satisfactory under ordinary conditions.

### FERTILIZING.

The best formula to use in fertilizing Japanese cane is yet an unsettled question. We know, however, that Japanese cane has a very large root system and is a gross feeder, and so we may use quite a liberal amount of fertilizer. Any crop that produces such a tonnage of forage must necessarily draw heavily upon the fertility in the soil. The following formula has given good results on the Experiment Station farm, and perhaps may be taken as a guide until we get better information:

Ammonia .....	3 per cent.
Phos. acid .....	6 per cent.
Potash .....	7 per cent.

(Apply fertilizer at the rate of 400 to 600 pounds per acre.)

Ground limestone, 2,000 pounds per acre.

It makes little difference whether our source of ammonia is dried blood or sulphate of ammonia. Likewise the source of potash makes no material difference.

Since it requires a long growing season (from March 15 to November 15 at Gainesville) for this crop to mature, it will be found advisable to give the fertilizer in two applications. The first application may be made in the latter part of April, and the second during the early part

of August. By putting the fertilizer on in two applications, there is not likely to be so much of it lost by leaching during the rainy season.

TABLE X

*Japanese Cane, Fertilizer Test, 1909-1910.*

	Plot 1	Plot 2	Plot 3	Plot 4
Dried Blood .....	112	.....	112	.....
Sulphate of Ammonia .....	.....	.....	.....	72
Muriate of potash .....	84	84	.....	84
Sulphate of potash .....	.....	.....	.....	.....
Acid phosphate .....	.....	224	224	224
*Ground limestone .....	.....	.....	.....	.....
Total fert. per acre .....	195	308	336	380
†Yield, tons, 1909 .....	24.2	17.7	16.1	19.1
†Yield, tons, 1910 .....	14.6	12.4	10.0	14.4
Sucrose per cent., 1909 .....	11.85	13.50	13.75	13.65
Sucrose, per cent., 1910 .....	11.00	10.85	10.50	11.00
Brix, 1909 .....	16.7	17.2	17.7	17.4
Brix, 1910 .....	15.35	15.40	15.30	15.40

	Plot 5	Plot 6	Plot 7	Plot 8
Dried blood .....	112	.....	112	112
Sulphate of Ammonia .....	.....	72	.....	.....
Muriate of potash .....	84	.....	.....	.....
Sulphate of potash .....	.....	84	84	84
Acid Phosphate .....	224	224	224	224
*Ground limestone .....	.....	.....	.....	2000
Total fert. per acre .....	420	330	420	420
†Yield, tons, 1909 .....	19.5	18.9	16.6	27.0
†Yield, tons, 1910 .....	11.8	16.7	14.1	16.0
Sucrose per cent., 1909 .....	13.60	13.50	13.53	13.78
Sucrose, per cent., 1910 .....	11.20	11.10	10.95	10.90
Brix, 1909 .....	17.4	17.5	17.6	17.8
Brix, 1910 .....	15.60	15.60	15.50	15.50

\*Ground limestone is not considered as a fertilizer but as a soil corrective.

†Green material.

Since the Japanese cane makes a new root-system each year, it is not necessary to give the first application of

fertilizer so early in the season as many have been doing in the past. If we examine the roots of the canes when growth starts in the spring, we will find that the feeding roots do not start until the tops have made a considerable growth. In fact the tops may have grown as much as a foot before the roots make a start. This early growth comes from the stored-up plant food in the old stalks of the ratoons, and the plants do not draw on the soil fertility until the roots have begun to grow.

The amount of ground limestone or lime to apply, will depend on the acidity of the soil. The more acid in the soil, the heavier should be the application of ground limestone or lime. There should be an amount sufficient to neutralize about all of the acid in the soil.

### CULTIVATION.

The cultivation of Japanese cane is nearly the same as that of corn or cotton. The important point to remember is the thorough preparation of the seed-bed before planting the canes. In the succeeding years the early spring cultivation should be somewhat as follows. About the time growth begins, give a thorough cultivation, stirring the ground to a depth of three or four inches. This may be done with the disk harrow going between the rows, or with the two-horse cultivator. There is no danger of injuring the roots at this time of the year, as the new roots have not yet made any growth. The first application of fertilizer should be applied just before the second cultivation. The second cultivation should be thorough, but not as deep as the first. As the crop continues to grow, the depth of cultivation should be less each time. Deep cultivation will be found to do much root pruning. If one will take time to examine the root system when the cane is nearly matured, a mass of fine feeding roots will be found very near the surface, many of them not more than

one-half inch deep. Deep cultivation destroys these roots, reducing the feeding capacity of the plants and so reducing the growth of the crop.

### HARVESTING.

There is a tendency for the farmer to be in too much of a hurry to harvest Japanese cane. To produce the best quality of feed all forage crops must reach a certain stage of maturity. This is especially true of all saccharine forage crops. The chief value of this crop as a feed is its high sugar content. The higher the percentage of sugar, the higher its feeding value. The formation of the sugar does not take place while the crop is making a rapid growth. When growth ceases, and the crop begins to mature, which occurs in the fall when cool weather comes, is the time the formation of sugar takes place most rapidly. Harvesting, therefore, should be delayed until near danger of frost. If it is to be used for silage, the silage will keep better and will have a higher feeding value if the cane is allowed to mature before putting it into the silo. If used for dry forage it will also give better results if not harvested until well matured. However, there is the danger of allowing it to stand in the field until injured by frost. If it is used for feed a short time after being injured by frost the loss will be but slight. The feeding value after freezing deteriorates with time.

At the present time we cannot recommend any machine that will successfully harvest Japanese cane. The canes are too hard and heavy for a mowing machine. After a couple of years' growth the rows spread out too widely for a corn harvester to work successfully. A machete, corn knife, or hoe will be found to do satisfactory work. No doubt as more farmers grow Japanese cane there will be a demand created for the necessary machinery for harvesting this crop.

## JAPANESE CANE AND VELVET BEANS.

The feeding value of Japanese cane pasture may be increased by planting velvet beans between the rows. If the rows of Japanese cane are eight feet apart, a row of velvet beans may be planted between the rows and still leave room to cultivate both cane and beans. Plant the velvet beans as soon as the cane starts new growth in the spring. Drop the beans about two or three feet apart in the row. Give both cane and beans good cultivation until the beans throw out long runners. If the beans are not planted early in the season the Japanese cane will get the start and will almost completely smother the velvet beans.

## ANALYSIS.

## ANALYSIS OF AIR-DRIED SAMPLE.

Water .....	6.75 per cent
Protein .....	1.37 per cent.
Fats .....	1.89 per cent.
Fiber .....	20.60 per cent.
Ash .....	2.04 per cent.
Nitrogen-free extract (sugars, etc.)..	67.35 per cent.

(Analysis from unpublished data of the Chemical Department of the Florida Agricultural Experiment Station.)

Japanese cane is rich in carbohydrates, but poor in protein.

This should be remembered when feeding it. We should not expect it to take the place of all the concentrates in the ration. However, since it is rich in carbohydrates, it is only necessary to supply feed rich in protein in combination with Japanese cane to obtain the best results. If this point be kept in mind we will not be disappointed in the results we obtain by feeding this to our live-stock.



TABLE XI.  
Good Rations.

	Percentage Composition.		
	Protein	Carbohydrates	Fats
Japanese cane, 10 pounds.....	.14	7.30	.19
Cowpea hay, 10 pounds.....	1.08	3.86	.11
Velvet beans in pod, 10 pounds.	1.71	6.19	.46
Total .....	2.93	17.35	.76
(Nutritive ratio, about 1:6.5)			
Japanese cane, 12 pounds.....	.16	8.76	.23
Velvet beans in pod, 10 pounds.	1.71	6.20	.46
Cottonseed meal, 2 pounds.....	.74	.34	.24
Total .....	2.61	15.30	.93
(Nutritive ratio, about 1:6.6)			
Japanese cane, 10 pounds.....	.14	7.30	.19
Cowpea hay, 10 pounds.....	1.08	3.86	.11
Velvet beans in pod, 8 pounds..	1.37	4.95	.37
Total .....	2.50	16.11	.67
(Nutritive ratio, about 1:6.7)			

Is Japanese cane hard on land?—This is a question asked quite frequently. No doubt Japanese cane is hard on land. Any crop that produces such an abundant growth of forage must necessarily draw very heavily upon the plant food in the soil. If then the plant food is not supplied by liberal application of fertilizer the soil will soon become exhausted and the yield obtained from the crop will be unsatisfactory. The plants produce a new root system each year. Hence there is some humus added and a small amount of plant food returned to the soil annually, but the amount left in the soil does not equal the amount taken out each season.

#### IMPORTANT FACTS.

1. The great need of Florida stockmen is an abundance of nutritious forage.

2. Japanese cane is the cheapest forage and silage crop that we can grow.
3. Japanese cane is a perennial, and one planting will last for many years if properly cared for.
4. Japanese cane will supply an abundance of good pasturage during the time of the year when this is most needed.
5. To obtain the best results in feeding, Japanese cane should be fed in combination with feeds rich in protein.
6. Japanese cane produces good yields of forage on a variety of soils.
7. Japanese cane has an immense root system and is a heavy feeder; hence it should be given a liberal application of fertilizer.
8. Japanese cane should not be pastured in the spring after new growth begins.
9. Japanese cane should be well matured before it is harvested.

## SORGHUM FOR SILAGE AND FORAGE.

BY JOHN M. SCOTT.

*Animal Industrialist and Assistant Director Experiment Station.*

The sorghum crop has received too little attention from our farmers. This is doubtless due to insufficient appreciation of the qualities of the grain produced by this plant, and to the common cultivation of varieties of sorghum which are not the best kind for our climate. With the present rapid improvement in stock, and with the greater demand for better beef and for milk and butter, we are forced to search for more productive and more nutritious forage crops than sufficed in the past.

### CLASSIFICATION.

It is supposed that all the varieties of sorghum now in cultivation originated from a single species, which was probably a native of Africa. The botanical differences which distinguished the various varieties are of almost no importance.

The sorghums may be divided into three classes: (1) Saccharine sorghums, (2) non-saccharine sorghums, and (3) broomcorns. The saccharine varieties are characterized by their tall, leafy stems, which are full of sweet juice. The non-saccharine varieties, as a rule, do not grow tall, and the stalks do not contain as much sugar. The broomcorns may be distinguished by their dry, pithy stalks, and by their long, loose seed-heads. The seed heads of the saccharine and non-saccharine varieties dif-

fer in size, shape, and color. The saccharine varieties are grown for syrup-making and for forage. The non-saccharine varieties are grown for either forage or grain.

### SOIL ADAPTED TO SORGHUM.

The sorghums grow well on almost any good land. Ground that is well-suited for growing corn, cotton or vegetables, will give good yields of sorghum, either forage or grain. Neither heavy clays nor very light sandy soils are well-suited for the crop.

### SILAGE IN GENERAL.

It is a well established fact that some form of succulent food is a desirable addition to the ordinary winter-rations for live stock; and the question arises as to the best and cheapest method of producing it. In England the farmer depends upon root crops, but in this country the raising of root crops will not in all probability be extensively practiced. Some have advocated the steaming of all feeds, but this method has failed to solve the problem. The silo has been extensively tried, and has been found to be the cheapest and also the best method of curing feed and keeping it in a good, palatable condition, so that it is relished by all classes of live stock.

### SORGHUM SILAGE.

The question which confronts the farmer is: What crop can I raise most economically for the silo? This means: What crop will produce most tons of good nutritious food per acre? Cowpea hay is known to be an excellent forage, but the yield is small; moreover it does not make a good quality of silage. The same is true with oats, rye, or beggarweed hay. It comes then to the question of deciding between corn and sorghum. Analysis shows sorghum silage to be a little richer in total digestible nu-

trients than corn silage. Sorghum has also a heavier yield of green forage per acre than corn. If then, sorghum produces silage richer in total digestible nutrients, and also gives a larger yield of green forage per acre, it has two important points in its favor. It is not only the best crop for the silo, but also the cheapest.

The cost of cultivating an acre of ground is the same regardless of the yield; that is, the time and labor required to produce an acre of corn will be the same, whether two tons or ten tons of forage are produced per acre; but the cost of production per ton will be reduced as the yield per acre is increased. For example, if it costs \$10 to fertilize and cultivate one acre that produces only four tons of forage, the cost per ton will be \$2.50; but if for the same expenditure of money we can produce some other crop that will yield from twelve to fifteen tons per acre, then the cost per ton will be reduced by nearly 60 to 75 per cent.

### SOWING SORGHUM.

Sorghum seed may be sown at any time from April 1 to July 20. When possible, it is advisable to sow early (from April 1 to April 15), as then the first cutting can be harvested in July, and with favorable conditions, another good crop may be harvested in October.

The quantity of seed required depends upon the method of sowing, whether in drills or broadcast. If sown in drills, 20 to 30 pounds of seed will be required per acre. If sown broadcast, more seed will be needed, varying from one to two bushels per acre. It is likely that if sown in rows, a distance of three or three and a half feet between the rows, and from two to three inches between the plants in the drill, will be found the most satisfactory. This distance will permit of cultivation being carried on, which will insure larger yields, and the cost of harvesting is also reduced.

The depth of planting will depend upon the conditions of the seed-bed at the time. If the seed-bed is well prepared, and there is plenty of moisture in the ground, then a half inch to one inch is as deep as the seed should be covered. But if the soil is very dry and loose the seed may be planted as deep as from one and a half to two and a half inches.

### FERTILIZING.

Sorghum is a gross feeder, hence it requires a large quantity of fertilizer. The amount, however, will vary with the quality of the soil. From 400 to 800 pounds of fertilizer containing:

Ammonia .....	4 per cent.
Available phosphoric acid .....	6 per cent.
Potash .....	6 per cent.

should be used. The ground should be thoroughly prepared, and the fertilizer should be applied a week or ten days before sowing the seed.

After the crop is harvested, with a small plow throw a shallow furrow away from the sorghum stubs; apply the fertilizer in this furrow, and then cover it by throwing the furrow back again.

If sorghum is planted after a crop of vegetables has been taken off the ground, fertilizing will not be necessary, as there will be enough fertilizer left in the soil to produce a good crop of sorghum.

### CULTIVATION.

Too much attention cannot be given to the preparation of the seed-bed, and to the cultivation of the growing crop. If the seed-bed is not thoroughly prepared, the result will be poor germination, which means poor stand, perhaps not more than half a stand. A poor stand means

a small yield of forage per acre. Where the seed-bed is thoroughly prepared, cultivation can begin much sooner, as the young plants will not be so easily covered or pulled out during the first cultivation, while they are quite small. This early cultivation will not only keep down weeds, but the stirring of the soil will also tend to hasten the growth of the crop. Sorghum is a slow-growing crop at first, hence the earlier its cultivation begins the more will the growth of the crop be hastened.

The two-horse cultivator should be used for cultivation. With this implement one man or boy, and two mules, will cultivate more than twice the area, and the soil will be left in much better condition, than when the old-fashioned one-horse plow or sweep is used. This means that the labor of cultivation will be reduced one-half. In other words, with the use of improved machinery the farmer will be able to double the area he is now cultivating; which will mean that he will raise double the amount of feed, and so can keep twice as much live stock as he is now keeping. Thus his gross income per year will be largely increased.

#### SORGHUM HAY.

Aside from being a good crop for silage, well cured sorghum makes an excellent hay crop. As hay, the saccharine varieties perhaps make a better quality of forage; but even the non-saccharine varieties are almost equal to crabgrass hay in feeding value, and give a much larger yield. In fact, from one acre of sorghum hay we get nearly double the amount of feed that we do from the same area of crabgrass. Sorghum hay, when fed with bran and cottonseed meal, will be found to give good results in the dairy. In fattening cattle for the market, sorghum hay supplied in addition to the grain feed will give good results.

## PASTURING SORGHUM.

Sorghums make a good pasture for all classes of live stock. Perhaps the saccharine varieties will be found to give the best results. For pasturing, the seed should be sown a little thicker than usual, about one and a half bushels per acre. The ground should be well prepared before-hand. Pasturing may begin when the plants are only a few inches high; but, for the best results, the crop should not be pastured until the sorghum is about one and a half or two feet in height. It has been estimated that one acre of good sorghum will pasture ten head of cattle for ten days. If not pastured too closely before the cattle are removed, a second growth can be secured, which will furnish additional pasturage.

## GRAIN.

Tests by various Experiment Stations have shown that the grain of the non-saccharine varieties of sorghum is of considerable importance as a feed. The seeds of the sorghums are very rich in carbohydrates (fat-producing material), but are low in protein. This, however, is not a serious drawback for Florida, as we have an abundance of feed rich in protein; such as cottonseed meal, or velvet beans. Either of these fed in combination with sorghum seed will give good results for either milk or beef production.

Comparing the feeding value of Kafir corn (one of the non-saccharine varieties of sorghum) with that of corn, we find that 100 pounds of Kafir corn are equal to 80 pounds of corn in feeding value. In other words, when corn is worth \$1.50 per hundred, Kafir corn is worth about \$1.20 per hundred for feeding.

## YIELDS IN THE SORGHUM VARIETY TEST, 1907.

These figures are the result of only one year's test, and



should therefore be taken only as indicating roughly what the yields may be.

NAME OF VARIETY.	Yield per acre of green forage in tons.	Yield per acre of grain in the head, in pounds.
Red Kafir Corn.....	3.968	1,187.50
Sirak .....	10.225	1,050.00
Honey .....	6.281	562.50
Sapling .....	5.900	550.00
Brown Durra .....	5.350	450.00
Minnesota Amber .....	8.612	975.00
Planter's Friend, No. 36...	13.068	787.00
Orange .....	13.813	1,336.50
Gooseneck, Erect .....	16.907	793.00
Planter's Friend, No. 37...	16.318	887.50
Amber .....	10.461	1,033.50
Snmac .....	12.449	429.50
Shallu .....	11.556	2,112.50
White Kafir .....	8.153	727.00
Gooseneck, Pendant .....	19.036	856.25
Collier .....	13.896	742.50
Red Amber .....	12.283	1,500.00
Cigne .....	12.450	900.00
Jerusalem Corn .....	8.204	458.00
Yellow Milo .....	9.487	900.00

## DWARF ESSEX RAPE FOR WINTER FORAGE.

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By JOHN M. SCOTT.

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### INTRODUCTION.

Dwarf Essex rape is a crop well suited to Florida conditions. It is excellent for feeding hogs, dairy cows, and sheep; as it will produce many tons of good nutritious feed per acre, at a time of the year when green feeds are scarce. Throughout a large portion of the State, farmers and stockmen could, with advantage, grow more of the succulent forage crops for feeding stock during the autumn and winter months, when the supply of grass and other green forage is often limited. Such crops may usually be grown on land that has already produced an early maturing crop. One of the best of these succulent crops is perhaps dwarf Essex rape—a plant closely related to the cabbage, turnip, and mustard.

### A WINTER CROP.

Rape is a forage crop that does not flourish in hot, dry weather; but in most parts of the State, especially in the center and south, rape grows well throughout the winter, and suffers very little from the cold. Last winter the rape grown at the Experiment Station was injured only very slightly by the lowest temperatures. It is considered that rape will stand as much as six to eight degrees

of frost, with little or no injury. This, of course, depends upon the stage of growth; the young tender growth being more readily harmed than the more mature leaves and stalks. It is not at all likely that the weather will become cold enough to kill the roots, even if the tops should be frozen down. In the latter case, the plants will soon shoot up again and produce a good crop.

### THE SOIL FOR RAPE.

Rape does well on nearly all kinds of soil; but, like many other crops, the better the soil the larger the yield. An old vegetable field would be a remarkably good location, and would require the addition of only a small amount of fertilizer. For the best results, rape should be planted on a rich, moist loamy soil. It will usually do well on any but light sandy soils or stiff clays, such soils being deficient in vegetable matter. Any soils that will produce good crops of vegetables, will also give good yields of rape. It is reported by several writers that rape is also well adapted to newly-cleared woodland.

### FERTILIZERS.

Practically nothing has been done at this Station to ascertain what fertilizers, or combinations of fertilizers, give best returns; but almost any good vegetable fertilizer, containing about six per cent, of ammonia, seven per cent. of phosphoric acid, and eight per cent. of potash, applied at the rate of from 200 to 700 pounds per acre, will be found to give good results. The larger amount would be applied on poorer lands, and the lesser amount on the richer soils.

### PREPARATION OF SOIL.

Too much attention cannot be given to the preparation of the field for this crop. Thorough preparation of the

field is the secret of successful farming, whether in Florida or elsewhere. Such preparation of the field will not only reduce the after cultivation by half; but it will also conserve a large amount of soil water, which would otherwise be lost by running off or by evaporation. A good fourteen or sixteen-inch two-horse plow is the best implement to use in preparing the field for seeding. With the plow, all trash and litter can be buried; for the more vegetable matter we can get into the soil, the more fertility we add to it, and the more its water-holding capacity is increased. The plowing should be fairly deep—about four to six inches. If the land is rough after plowing, the disc harrow is needed. In using the disc harrow, it is best to lap half the width of the harrow each time, since the surface of the soil will then be kept level, which otherwise would be ridged. It is well to harrow with a toothed harrow after using the disc, so as to get the surface in the best tilth.

### HOW TO PLANT.

Rape may be planted in drills or sown broadcast. If the ground is badly infested with seeds of noxious weeds, it will be better to plant in drills and give some cultivation. Rape is rather a slow grower at first; but after reaching the height of three or four inches, it grows rapidly. If planted in drills, the drills should not be more than two feet or two and a half feet apart. It is the writer's opinion that more satisfactory results will be obtained if it is planted in drills, for the following reasons: First, there is less waste when pastured, as stock naturally walk between the rows, and so do not trample as many plants or leaves under foot. Second, less seed is required. Third, drilling permits cultivation, insuring larger yields. The amount of seed required per acre will vary from three to five pounds, according as it is planted in drills or sown broadcast.

The seed may be sown at any time from the fifteenth of September to the fifteenth of December. The farmers of West Florida will find it best to plant during the latter part of September, while those of Central and South Florida can plant later in the season. The seed may be obtained from most seed houses.

### HOW TO FEED RAPE.

Stock may be turned into the field and allowed to pasture on the rape, or it may be cut and fed to them. With the latter method much larger yields will be secured, if care is taken in cutting. If cut so as to leave the stubs five or six inches high, a second—and under favorable conditions, a third—crop may be secured. If pastured, some care must be exercised at first, until the stock become accustomed to it. When cattle are first allowed to pasture on rape, there is danger of bloating; but this can be easily avoided by feeding the animals a little hay or grain, just before turning them on the rape. In other words, do not turn the stock on the rape to pasture when they are hungry. When first turned on to pasture, let them graze for only a few minutes the first day—say ten or fifteen minutes; the second day allow them a few minutes more, and so on, until they become accustomed to rape. Another difficulty found in pasturing cows on rape is that it may cause a disagreeable taint in the milk. This may be overcome by using a little care and judgment in feeding. If the cows are allowed to pasture on the rape for about an hour just before and after milking, and at no other time, very little, if any, difficulty will be found.

### YIELD PER ACRE.

The experience of this Station in growing rape has shown yields of from 27,200 to 33,296 pounds per acre. These results are based on the crops of two years. Many

of the Northern States report yields of thirty to fifty tons of green forage per acre. No doubt there is plenty of land in Florida capable of giving equally good returns.

#### RAPE TEST, 1907-8.

Three plots of dwarf Essex rape were sown in drills, the rows being thirty inches apart. Plots 1 and 2 were sown on September 25, 1907. The ground was thoroughly plowed, and a good seed-bed prepared, before sowing the seed. The soil on which the rape was grown was a very light sandy loam. On December 21, 1907, plot 3 was sown. The character of the soil was the same as for plots 1 and 2. The ground had been in sweet potatoes during the previous season. The potatoes were taken up in November, at which time the ground was well plowed, and then harrowed. Nothing more was done to the ground until just before planting, when it was again harrowed. Each plot was given one cultivation for each cutting made.

On better soil the yield could be increased from 25 to 50 per cent. without additional cost. Even with the yield of 16.59 tons from plot 2, the cost per ton was less than \$1.50; and if we increase the yield, we will at the same time reduce the cost per ton.

The tables which follow give the date of planting, the date of harvesting, and yield of green forage per acre for each cutting, and also the kind and amount of fertilizer used.

TABLE 1.

Amounts of Fertilizer Used in Pounds Per Acre.

Plot No. 1.	Dried Blood.	Muriate of Potash.	Acid Phosphate.	Total for Season.	Date When Fertilizer Was Applied.
1	150	64	175	389	September 25, 1907
2	300	128	350	778	September 25, 1907
3	150	64	175	389	February 10, 1908
3	200	115	300	615	December 21, 1907

TABLE II.

Yields of Green Forage in Tons Per Acre.

Plot No. 1.	Date of Harvesting	Date of Planting.	First Cutting.	Second Cutting.	Total for Season.
1	September 25, 1907	December 6, 1907	3.9	.....	3.9
2	September 25, 1907	December 6, 1907	8.9	.....	16.59
.....	.....	March 27, 1908	.....	7.69	.....
3	December 21, 1907	March 28, 1908	3.24	.....	3.24

The following is the composition of rape:

Dry Matter.	Protein.	Carbohydrates.	Ether Extract.
14 per cent.	1.5 per cent.	8.1 per cent.	0.2 per cent.

It is practically the same composition as cabbage.

## NATIVE AND GRADE CATTLE-BREEDING.

—BY—

JOHN M. SCOTT.

At the present time there are about eight hundred thousand head of cattle in Florida. Perhaps 95 per cent. of these are the native Florida cattle, which no doubt are mostly descended from the old Spanish stock, with little or no improvement. It is stated, however, that many cattle were shipped into Florida from North Carolina, South Carolina, Alabama and Georgia. This influx of cattle from states farther north took place from 1840 to 1850, and perhaps before then. At that time the cattle must have been similar to our native cattle, as four to six-year-old steers weighed from 350 to 500 pounds.

What were probably the first efforts toward improvement of the native cattle took place about 1845. About this time Mr. McKinnon of Walton County imported direct from Scotland a large Shorthorn bull. This bull did good service for a number of years. The improvement over the native cattle was noticeable. The size of the grade cattle was larger, the four-year-old steers weighing from 450 to 750 pounds. But little was done toward improvement after this time, except to use grade bulls resulting from the use of the pure-bred Shorthorn bull. The improvement brought about by the use of this one bull made an impression on the cattle in that part of the state which was evident for a number of years after the old bull was dead. Had the good work started by Mr. McKinnon been continued, Florida would today have as good a grade of beef cattle as any other state in the Union.



At the present time, Florida is more of a live-stock state than many suppose. The following figures taken from the Eleventh Biennial Report of the Commissioner of Agriculture show how the cattle industry of the state compares with other industries:

	Value.
Cattle (exclusive of cows kept for milk) .....	\$ 6,511,981
Dairy cows and Dairy products .....	3,917,787
Poultry and Poultry products .....	2,413,940
Field crops .....	14,612,840
Vegetable and Garden products .....	6,825,912
Fruit products .....	5,905,727

(No value is given for the fruit trees.)

### BEEF BREEDS OF CATTLE.

From experimental work and observations, there seems to be but little to choose between the standard beef breeds (including Shorthorn, Hereford, Aberdeen-Angus and Galloway). The choice would be very largely a matter of personal fancy. We would, however, discourage as much as possible the use of dairy breeds, such as Jerseys and Guernseys, in a beef herd. We find that a certain number of stockmen in the state are using grade Jerseys and grade Guernsey bulls in their beef herds. The use of such bulls in a beef herd will not make the desired improvement. The Jersey and Guernsey breeds lack both the size and conformation desirable in the beef animal.

Good size in the beef animal is desired for the following reason. One animal weighing 1,200 pounds on foot will not require as much feed for growth and maintenance as will two animals weighing 600 pounds each. Therefore, more pounds of beef will be produced from the same amount of feed when fed to a large animal, making the larger breeds of cattle more economical for beef production.

# COMPARATIVE EXPERIMENT WITH GRADE STEERS.

At the Experiment Station farm, during the spring of 1908, fifteen native cows were selected. These fifteen cows were separated into three lots of five cows. The lots were arranged to be as nearly equal in size and quality of the animals as possible. The cows in Lot I were bred to a Hereford bull; those in Lot II were bred to a Shorthorn bull; and the cows in Lot III were bred to a native Florida bull. From these fifteen cows twelve calves were produced. (One cow failed to breed; a second cow was found to be in calf when the experiment started and was discarded; while a third cow met with an accident and aborted.) Each lot of cows and bull was kept in a separate pen until every cow was known to be in calf.

The following table gives the date of breeding each cow, and the date when each calf was dropped.

TABLE XII.

Cow No.	Date when cows were bred.	Date when calves were dropped.
<b>Cows Bred to Hereford Bull.</b>		
1	April 18, 1908.....	January 6, 1909.
2	April 24, 1908.....	January 10, 1909.
3	April 28, 1908.....	January 31, 1909.
4	June 10, 1908.....	March 20, 1909.
5	August 23, 1908.....	June 2, 1909.
<b>Cows Bred to Shorthorn Bull.</b>		
6	May 5, 1908.....	February 16, 1909.
7	July 10, 1908.....	April 26, 1909.
8	July 2, 1908.....	April 12, 1909.
9	July 18, 1908.....	April 7, 1909.
<b>Cows Bred to Native Bull.</b>		
10	May 13, 1908.....	February 24, 1909.
11	June 24, 1908.....	Aborted January 18, 1909.
12	July 14, 1908.....	April 18, 1909.
13	July 20, 1908.....	April 28, 1909.

The cows were all kept on the same range until the calves were weaned. Under these conditions all calves had the same chance so far as range conditions were concerned. After the calves were weaned, observations were continued on only two calves from each lot of cows. After weaning time the calves were all kept on the same pasture in summer, while during the winter season they were given the range of a velvet-bean and Japanese-cane field. So that each calf was given as nearly equal a chance as was possible.

TABLE XIII.  
Weights of Calves.

Time of Weighing.	Grade Herefords.			Grade Shorthorns.			Native.		
	No. 1.	No. 2.	Average.	No. 3.	No. 4.	Average.	No. 5.	No. 6.	Average.
At Birth .....	52	52	*47.9	52	61	†56	48	47	†48.6
At Weaning Time.....	265	340	*352	390	330	†342	310	325	†305
Oct. 28, 1909.....									
At One Year Old.....	442	368	405	425	470	447	485	410	447
May 1, 1910.....	410	442	426	502	472	487	487	467	477
June 1, 1910.....	442	475	458	528	507	517	515	490	502
July 1, 1910.....	486	510	498	566	532	549	552	522	537
Aug. 1, 1910.....	505	530	517	590	545	567	560	530	545
Sept. 1, 1910.....	500	525	512	592	545	568	572	540	556
Oct. 1, 1910.....	505	545	525	565	550	567	565	550	557
Nov. 1, 1910.....	495	535	515	559	547	553	568	547	557
Dec. 1, 1910.....	490	535	512	540	530	535	560	550	555
Jan. 1, 1911.....	460	515	487	525	525	525	530	535	532
Feb. 1, 1911.....	462	542	502	537	555	546	557	542	549
Mar. 1, 1911.....	482	560	521	552	577	564	532	576	579
April 1, 1911.....	507	580	543	567	600	583	610	610	610
May 1, 1911.....	535	625	580	602	610	606	650	632	641
June 1, 1911.....	540	630	585	500	600	600	640	630	635
July 1, 1911.....	595	685	615	635	610	622	675	665	670
Aug. 1, 1911.....	640	695	667	670	655	662	700	690	695
Sept. 1, 1911.....	715	730	722	737	775	756	785	767	776
Oct. 1, 1911.....	680	710	695	680	700	690	735	710	722
Nov. 1, 1911.....	697	727	712	682	720	701	750	745	747
Dec. 1, 1911.....	660	672	666	667	710	688	713	719	716

\*Average of five calves.

†Average of four calves.

‡Average of three calves.

Table XIII shows that at birth the grade Herefords averaged 47.9 pounds; the grade Shorthorns, 56 pounds; and the natives, 48.6 pounds. At weaning time, October 28, 1909, when the calves were about seven and a half months old, the grade Herefords averaged 351.6 pounds; the grade Shorthorns, 342.5 pounds; and the natives, 305 pounds. Thus there is only a slight difference in weight at birth and weaning time. This difference in weight is not more than one would expect to find in weighing up three different selections of young cattle, taken from the same range.

The weights when the animals were one year old were quite uniform. The grade Herefords averaged 405 pounds; and the grade Shorthorns and natives averaged exactly the same, 447.5 pounds. For the first year the Herefords made an average daily gain of 0.97 pounds; the Shorthorns, an average daily gain of 1.07 pounds; and the natives an average daily gain of 1.09 pounds. Thus there is only a slight difference in the average daily gain of the three lots.

The weights at one year of age were not great for good yearling steers. But when we compare these weights with that of the average native cattle, we find that at one year these animals were about twice as heavy as the average native steers of the same age. In a slaughter test, conducted four years ago, ten native three-year-old steers averaged only 516 pounds per head.

If the calves in the foregoing experiment had been turned out on the open range to hustle for themselves, they would doubtless on March 1, 1910, have been from 25 to 50 per cent. lighter than when weaned on October 28, 1909. The heavy loss in weight would be due to the fact that during the winter season the pastures are very poor, and if forage of some kind is not supplied (which is not done by the majority of stock-raisers), the animals are almost starved. Under these adverse condi-

tions our native cattle never grow and develop as they should, or as they would if supplied liberally with forage during the season when the pastures do not afford sufficient grazing.

Although this experiment shows that the native cattle made as good gains from birth until two and a half years of age as did the grade Hereford and grade Shorthorn, it does not indicate that the native cattle are more profitable than grades. There is no doubt, however, that by the proper selection, and the supplying of an abundance of good forage during the winter season, we can increase the size of our native stock as much as 30 or 40 per cent.

On December 2, 1911, the six animals were put in a small yard and fed for ninety days on a ration of shelled corn, cottonseed meal and Japanese cane. Table XIV gives the daily ration fed, also the total feed consumed by the six animals during the ninety days while on feed. At the beginning of the feeding test they were started on a light ration, and the feed was gradually increased, until at the end of the fifth week they were eating the full ration. Table XV gives the weights at the beginning of the feeding test, the weights at thirty-day intervals, the total gain and the average daily gain per head.

TABLE XIV.

## Daily Ration.

Corn .....	8 pounds
Cottonseed Meal .....	4.6 pounds
Japanese-cane forage .....	21.6 pounds

## Total Feed Consumed.

Corn .....	3,935 pounds
Cottonseed meal .....	2,253 pounds
Japanese-cane forage .....	11,502 pounds

TABLE XV.

## Weight and Gains.

	No. 1 Hereford.	No. 2 Hereford.	No. 3 Shorthorn.	No. 4 Shorthorn.	No. 5 Native.	No. 6 Native.
December 2, 1911. Beginning of feeding test.....	660	672	667	710	713	719
Jan. 1, 1912. End of 30 days.....	710	723	717	769	772	785
Jan. 31, 1912. End of 60 days.....	722	757	766	827	846	813
Mar. 1, 1912. End of 90 days.....	773	784	831	886	856	893
Total gain in 90 days.....	113	112	164	176	147	174
Average daily gain.....	1.26	1.24	1.82	1.96	1.63	1.93

Table XVI shows the live weight at the time of slaughtering, the dressed weight and the percentage of dressed weight.

The live weights were taken just a few minutes before slaughtering. The dressed weights were taken immediately after slaughtering. (The dressed weight is the weight of carcass with the head and feet taken off and liver and heart taken out, but kidneys not removed).

TABLE XVI.

## Live and Dressed Weights.

	Live weight Pounds.	Dressed weight Pounds.	Percentage dressed weight.
Grade Hereford, No. 1.....	800	393.5	49.31
Grade hereford (heifer), No. 2.....	780	408	52.30
Grade Shorthorn, No. 3.....	800	408.5	51.06
Grade Shorthorn, No. 4.....	830	440.5	53.00
Native, No. 5.....	860	458	53.33
Native, No. 6.....	830	436.5	52.59

## SMALL SIZE LARGELY DUE TO INSUFFICIENT FEEDING.

It is the opinion of some that the small size of our native cattle is due to our climatic conditions. This opinion, however, is not well founded. For large breeds of cattle live in the tropics, as in India.

Another opinion is that the small size is a character of our native cattle. Breeding no doubt has its influence, but we find that even when thorough-bred animals are reared under the same conditions as our native cattle they, too, are small. We must therefore look for some other reason than that of climate or lack of care in breeding for the small size of our native stock. In-breeding, and breeding at a young age, both of which are sure to occur on the open range, may have some influence in reducing size. But the reduced size will be found to be due largely to the lack of nutritious forage during the winter season.

In a slaughter test of twenty head of native cattle, the average dressed weight was found to be 280.6 pounds. These animals were three years old and over. They were about mature, as far as size is concerned. These cattle were slaughtered during the latter part of September, and their light weight was not due to lack of flesh, as the animals were in good condition. The lack of size was due to the animals not having been supplied with sufficient nutritious feed to keep them in a healthy, growing condition from the time they were weaned until they were ready for the market.

As already mentioned, at the Experiment Station farm, during the spring of 1908, a number of native cows were bred to a native bull. The calves from these cows were dropped during the spring of 1909. At weaning time (October 28, 1909) these calves averaged 305 pounds per head. At one year of age they averaged 447.5 pounds.

This is almost as heavy as many of our range cattle are at three years of age. On October 1, 1911, when these calves were about two and a half years of age, they averaged 722.5 pound per head. They were given no better care and feed than the average farmer could readily supply. The summer pasture was similar to the ordinary pine-wood pasture. During the winters they were given the run of a velvet-bean and Japanese-cane field. This supply of winter forage kept the animals in a growing condition, so that they did not become stunted.

This shows that the small size of our native cattle is not due to heredity, but largely to the lack of feed. We do not mean that the animals must be kept fat enough for market at all times, but we do mean that they should be kept in a healthy growing condition. When an animal becomes so emaciated that it can hardly get up when it lies down, it is certainly not in a healthy condition. Neither is it in a condition to grow and develop, but rather all development will be stopped. When the development of a young animal is once stopped or checked, the animal will never make the growth that it would otherwise have done.

It is now the time of year when we should give some thought to growing supplies of feed for our cattle during the coming winter. An abundance of good forage can be had by planting such crops as sorghum, German millet, and, later in the season, cowpeas and sweet potatoes.

#### YOUNG BEEF MOST PROFITABLE.

Almost every stockman has to consider at what age he should sell his cattle so as to obtain the largest profit from the investment. This is a question that should receive due attention. The results of the experiment



given in this bulletin would show that, in this case, the greatest profit would be obtained by selling the calves at weaning time.

The calves were born from January 6 to June 2, 1909. Three of them were born in January, two in February, one in March, five in April and one in June. This variation in age covered about the entire breeding season as practiced by Florida stockmen. Had the calves all come in January or February, one might form the erroneous opinion that only the calves that come in January or February could be put on the market at a young age. The fact of the matter is that the calves dropped in April made nearly as good gains, and were nearly as heavy at weaning time, as were the January calves.

The birth-weights of these calves varied from 41.5 to 61 pounds, with an average of 50.8 pounds per head. The birth-weight does not seem to have much to do with the growth of the individual up to weaning time. Some of those that weighed the least at birth were among the heaviest at weaning time. The figures seem to show that the birth-weights of the calves dropped in January are less than those dropped in April. However, before we can make any definite statement regarding this, it would be necessary to gather like data on a large number of animals.

From birth until weaning time the cows and calves were all given the same care; that is, they were all kept on the same range, so that all calves had the same chance so far as range conditions were concerned. The calves were all weaned on October 28, 1909. At this time the oldest calf in the lot was not the heaviest. But, as would be expected, the youngest calf in the lot was the smallest. The heaviest calf at weaning time was born on January 31. Its birth-weight was 51 pounds, and at weaning time it weighed 398 pounds. The young

est calf was five months old when weaned, its birth-weight was 52 pounds, and at weaning time it weighed 265 pounds. The average weight of the twelve head at weaning time was 338 pounds.

The average age at weaning time was about seven and one-half months. The market value of these calves at weaning time was \$3.75 per hundred. At this time the heaviest calf weighed 398 pounds, which, at \$3.75 per hundred, gives it a value of \$14.92. At weaning time the smallest calf weighed 265 pounds, and at \$3.75 per hundred, was worth \$9.94. Since they averaged 338 pounds per head, a price of \$3.75 per hundred gives them an average value of \$12.66 per head. From \$10 to \$14 per head may well be considered a good price for calves at weaning time. There have been several thousand head of two and three-year-old steers sold in Florida in the past few years at from \$10 to \$14 per head. These same animals, had they been given reasonable attention, could have been sold at weaning time for the same price, and the net profit per head would have been a great deal more.

The profits derived by selling calves at weaning time are much greater than by keeping them until two or three years of age. The calf up to this time eats but little grass, as it depends largely upon the milk of its mother for nourishment. The cost of keeping the cow is the same whether the calf is sold at weaning time or kept until three years of age. When sold at weaning time, the cost of keeping the calf through the winter is eliminated. The winter season is the critical period for the calf. It is also the season of the year when the cost of keeping the animal is largest. Another point that must be considered is that when the crop of calves is sold at weaning time a much larger number of breeding cows can be kept on the same range than it is possible to do when the beef herd is not sold until two

or three years of age. This is an important consideration, since the overstocking of the range is a serious mistake in the production of live stock.

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#### SUMMARY.

1. Native cows were bred to Hereford, Shorthorn, and native bulls.
2. At birth and at weaning the weight of the three lots of calves did not differ much.
3. In dressed weight the two natives, at two and a half years old, made an equally good showing with the grades.
4. The native cattle can be much increased in weight by good winter feeding.
5. It would have paid better to have sold these calves at weaning, than to have kept and fed them.

# CLASSIFICATION OF THE SOILS OF FLORIDA

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E. H. SELLARDS, *State Geologist.*

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  - Hammock lands.
    - Calcareous hammock.
    - Clay hammock.

Sand hills.  
 Sand dunes.  
 Scrub.  
 Prairie and savanna.  
 Alluvial lands.  
 Swamps.  
 Marsh and muck lands.

Natural physiographic and soil divisions of the State.

West Florida pinelands.  
 West Florida coastal belt.  
 Euchee valley hammock lands.  
 Holmes valley hammock lands.  
 West Florida limestone belt.  
 The Apalachicola flatwoods.  
 The middle Florida hammock belt.  
 Middle Florida flatwoods.  
 Gulf hammock belt.  
 Erosion valley of the Suwannee river.  
 Hard rock phosphate belt.  
 Lake region.  
 East Florida pine lands.  
 Atlantic coast hammock belt.  
 Atlantic coast dunes.  
 South Florida pine lands.  
 Southern Gulf coast dunes.  
 The Everglade muck lands.  
 The Miami limestone belt.  
 Dade county prairie belt.  
 Mangrove swamps.  
 The Florida keys.

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#### DEFINITION OF SOIL.

Soil may be defined as the relatively thin covering of fragmental material that more or less completely mantles the surface of the earth and serves as an anchorage for and contributes to the growth of plants.

#### ORIGIN OF SOIL.

Soils originate from the decay and disintegration of pre-existing rocks. They are therefore largely inorganic in character, although to the inorganic material there is added more or less organic matter resulting from the de-

cay of vegetable and animal life. While the mineral or inorganic material usually predominates, some soils, as those derived from muck and peat deposits consist largely of organic matter.

#### PHYSICAL BASIS OF SOILS.

The average soils consist chiefly of an intimate admixture of clay particles and sand grains with more or less gravel. However, many other minerals occur in soils, and almost any mineral that is relatively insoluble and not easily decomposed may be expected as a soil ingredient. On the other hand under normal conditions the readily soluble minerals are largely removed by rain water while the unstable minerals are decomposed. It is only in the arid regions that the water soluble minerals accumulate in soils.

#### ROCKS OF THE EARTH'S CRUST.

The rocks of the earth's crust from which soils are formed may be grouped under two main divisions, igneous (or primary) and sedimentary (or secondary). The igneous rocks are those which appear to have cooled from a molten condition. The earliest rocks of the earth's crust are of this type, as well as the more recent materials brought up from deep within the earth by volcanic action. Secondary, or sedimentary rocks on the contrary, are those which have been derived either directly or indirectly from igneous rocks. Chemical changes, however, are going on incessantly within the earth and affect all rock formations. Chemical and physical forces have in many instances so profoundly altered formations that it is no longer possible to determine whether they were originally igneous or sedimentary. For these the term metamorphic rock has often been used.

*Igneous Rocks:*—The igneous rocks are very complex chemically, and include most of the chemical elements. In structure and mineralogical composition they are likewise variable. The structure is determined largely by the rate of cooling and other conditions under which the rocks were formed. When cooled quickly the time necessary for crystallization is not available and the rocks are of a glassy texture. When cooled more slowly various minerals are formed and the rock assumes a more or less distinctly crystallized structure. Volcanic ash and obsidian are examples of rapidly cooled rock; while the granites and similiar coarsely crystallized rocks may result from a molten mass cooling slowly deep within the earth and under great pressure, which latter condition favors a more perfect crystallization.

Mineralogically the igneous rocks are likewise complex. The presence of the chemical elements under varying conditions of cooling give conditions favorable for the formation of many minerals. The leading minerals formed under these conditions are the silicates, of which there are a great number. In addition to the silicates, sulphates, sulphides, phosphates, phosphides, chlorides, oxides and other minerals abound in these rocks. Among the minerals in the igneous rocks, quartz is to be noted in this connection as the mineral which, owing to its abundance and great resistance, remains as sand even after the disintegration and disappearance of most of the associated minerals. The feldspars break up through decay, furnishing the clayey element in soils, while from certain of the feldspars are derived also the potash so necessary to soil fertility. The ferromagnesian silicates include pyroxenes, amphiboles and mica. From these minerals is derived the iron which is so large an element in the coloring of soils, as well as various other bases, as calcium and magnesium. Phosphorus is present in igneous rocks, although usually in small quantities in the form of apatite.

*Secondary or Sedimentary Rocks*.:—The secondary, derived or sedimentary rocks are grouped into several classes determined by their manner of formation and chemical composition. These rocks are much less complex both in structure and in chemical and mineralogical composition than the igneous rocks. They are derived from other rocks and in the process of reworking there is necessarily a selective separation of materials. The more soluble constituents of the original rocks are carried to the rivers, lakes and the ocean in solution, while the less soluble are mechanically transported and are separated according to specific gravity and size of particles.

Such common rocks as shales, sandstone, and conglomerates represent material mechanically transported and re-accumulated. The transporting agents are chiefly running water and the wind. The shales represent the finer sediments carried as mud, accumulated in quiet water and subsequently consolidated. The sandstones are the result of the accumulation of sands either by water or by the wind. After being accumulated these sands may become cemented and thus form sandstone. Sands accumulated on land by the wind form sand dunes in which the sand may remain in a loose uncemented condition or under certain conditions may be more or less perfectly cemented. The conglomerates are made of the heavier materials such as pebble and small rock, which is the first to drop out of suspension in running water. The clays, likewise are in some instances mechanically accumulated, although many of the clays are residual, having formed in place from the decay of such clay-bearing minerals as the feldspars.

The clays and shales consist of a mixture of several minerals, among which hydrated aluminum silicates predominate. With these is found in varying quantities, quartz, mica and other minerals. Sandstones consist largely of quartz sands, while the conglomerates may be of any material, although flint pebbles usually predominate.



The limestones in the secondary formations are either of chemical or organic-chemical origin. The bases, calcium and magnesium, are taken into solution and carried by running water to the lakes and the ocean. Subsequently under certain conditions they may be precipitated from the water to form limestone, thus constituting the chemically formed limestones. More frequently, however, organic processes are involved, the constituents being taken from the water through the agency of organisms, chiefly shells and corals, which have the power of extracting from solution the materials from which the calcareous skeleton is built. After the death of the animal the skeleton remains to form the limestone. Shells accumulate in this way to form shell limestones, and corals in some instances accumulate to form a coral limestone. The foraminifera, animals having a minute calcareous shell, accumulate in such abundance as to make up extensive limestones, the formation known as the Vicksburg Limestone underlying Florida, being composed in places chiefly of these small shells. The oolitic limestones such as the Miami Oolite in southern Florida are probably in part at least chemically formed, although many shells and some corals are included.

The term marl is somewhat loosely applied to calcareous formations, several varieties of which are found in Florida. When consisting largely of shells these marls are known as shell marls. Some of the marls which accumulated in bogs contain few or no shells, having been apparently chemically formed.

Some of the other secondary rocks are purely of chemical origin. Among these may be mentioned the bog iron ore frequently found in old swamps. The iron in these deposits has been brought into the swamps in solution and subsequently precipitated owing to the organic acids present in swamp water. The flint masses found frequently in limestone formations are due to segregation of silica through chemical action.

Owing to the assorting processes which accompany the formation of the secondary or sedimentary rocks, they are, as previously stated, much less complex chemically than are the igneous rocks. This absence of chemical complexity has an important bearing on the formation of soil, and there are well marked differences to be noted between soils derived from igneous and those derived from sedimentary rocks.

It is to be noted in this connection that the formations found in Florida from which the soils are derived are not igneous but are of sedimentary origin. Since there are many different kinds of sedimentary rocks the soils from them are necessarily varied. Moreover, the character of the soil is determined not alone by the formation from which derived, but also by the climatic, drainage and other conditions to which it has been subjected. Distinct formations if similar in character may give rise to similar soils. Conversely, a single formation under varying conditions may give rise to various soils, the differences in the soils being due to the different topographic and drainage conditions under which they have accumulated.

#### DISINTEGRATION OF ROCKS.

This discussion of soils would be incomplete without at least a brief mention of the agencies that bring about the disintegration of rocks. Active among the agencies of decay are: Changes of temperature; frost or freezing; wind; water; animals; and plants. Through the continued activity of these agencies, solid rocks crumble to dust, the residue forming the mineral constituents of soils. The combined effect of all these agencies is known as weathering, and all rocks when exposed at the earth's surface are subjected to this process.

*Changes of Temperature:*—Changes of temperature of rocks result in alternate contraction and expansion, thus widening existing breaks and joints, loosening the rocks

and permitting the entrance of water, which finds its way more readily through the rock. In dry climates rocks heated to a high temperature during the day cool rapidly at night. Under the influence of heat rocks expand, and the sudden cooling and contraction of the exterior crust upon the still heated and hence expanded interior sets up strains which frequently disrupt and break the crust. Then too, rocks consist usually not of one but of several minerals, and each mineral has its own coefficient of expansion and contraction and hence contracts and expands when heated, at a slightly different rate from the associated minerals. Thus the different parts of the rock are subject to strains, which loosen the minerals and let water enter more freely, thus hastening decay.

*Frost and Freezing*:—Aside from the ordinary changes of temperature freezing in the colder latitudes is an active destructive agent. When water freezes it expands with almost irresistible force. The breaks, crevices and pores of rocks are filled with water as a rule, and when this freezes, the force of the expansion of the water enlarges all such openings, thus hastening the decay of the rock. Decay from freezing takes place most rapidly as will be apparent, at seasons of the year when alternate freezing and thawing occur frequently, as when the surface rocks thaw during the day and freeze at night. Owing to the mild climate this factor in the decay of rocks is of minor importance in Florida.

*Wind*:—The wind as a weathering agent might at first thought, seem to be of little or no importance, yet under favorable conditions the sand, fine gravel and other materials, carried by the wind may be hurled with considerable force against the face of exposed rocks and thus gradually wear them away. The wind is most active as an agent of decay in the deserts and other sections of light rainfall. Under the action of the wind the softer materials wear away first. Also, since heavier materials

carried by the wind are carried close to the ground, the base of exposed rocks is worn more rapidly than other parts, resulting in fantastic sculpture as seen in some of the desert rocks.

*Water:*—The agencies mentioned, changes of temperature, frost, and wind all exert a purely mechanical effect in the disintegration of rocks. Water, however, in its phases of activity, acts both mechanically and chemically. Falling as rain, water has but feeble mechanical effect, although in the form of running water a greater mechanical action is exerted, not by the force of water alone, but more particularly by the force of the impact of materials thrown by the current against the face of exposed rocks along the bottom and the sides of the stream. The mechanical action of water is in this respect analogous to that of the wind. The waves of the sea and of the large lakes carry on mechanical erosion by the force of impact of the waves beating on the shore.

The chemical action of the water is vastly more effective in the disintegration of rocks than the mechanical. Rocks consist ordinarily, as previously stated, of a mixture of minerals, and while all minerals are to some extent soluble, some are much more readily soluble than others. When these soluble minerals are removed in solution, the rock necessarily crumbles. Run water upon passing through the atmosphere and entering the earth, takes into solution more or less of the gases, carbon dioxide and oxygen. From the decaying vegetation in the earth it receives also various organic acids, all of which materially increase its solvent action. For this reason many rocks that are little affected by solution above ground are disintegrated beneath the surface.

Some chemical reactions in which water takes no actual part nevertheless take place much more readily in the presence of moisture. This is particularly true in the process known as oxidation which is a very important factor in

the disintegration of rocks. This reaction, as previously stated, takes place much more readily in the presence of moisture and slowly or not at all in the absence of moisture. The effect of oxidation is the formation of new minerals. Oxidation does not necessarily bring about decay, since the oxidized form of minerals is more stable than most other forms. Indirectly, however, it results in the breaking up of rocks. If, for instance, rocks exposed at the surface contain sulphides, these on exposure are likely to be oxidized to oxides and the solidarity of the rock destroyed.

Hydration is also an important chemical reaction accompanying decay of rocks. Hydration is the chemical reaction by which water is taken into chemical union by the mineral, thus forming in reality a new mineral. When hydrated a mineral is found to occupy more space than in the non-hydrated condition. Not all the minerals in a rock as a rule are subject to hydration, but the increased space occupied by the hydrated minerals results in the disintegration of the rock.

The destructive force of water in the form of ice sheets, although not effective in Florida, has been of importance in glaciated regions. Glaciers now exist both in the arctic and antarctic regions, and in former times they were of greater extent. During the glacial period immense sheets of ice moved southward extending, in the central part of the United States, as far south as the Ohio River valley. The action of glaciers is characteristic. The ice sheet moving slowly holds the smaller rocks firmly and pushes them slowly over the stationary underlying rocks, grinding the rocks to a fine powder, which subsequently reaccumulates as soil materials. The glacial soil is often rich, consisting as it does of rocks thus artificially ground, having been less affected by the dissolving and assorting power of water than other soils.

*Plants and Animals:*—The action of plants and animals

in the disintegration of rocks and the formation of soils is important. The roots of plants penetrate the rock crevices and as they grow pry apart the rock thus enlarging the opening. Seeds of plants likewise fall into crevices and by their growth open wider the natural breaks in the rock. Moreover, the roots of plants secrete acids which act as solvents on the rock. Some marine animals bore into the rocks, while on land many different animals bore into the soil, thus bringing the deep and less thoroughly disintegrated soil to the surface, and also permitting the rainfall and air to have free access to the deeper soils. In Florida the so-called salamander, a small rodent, *Geomys tuza floridanus*, bores extensively in the sandy soils. This animal, however, is adverse to moist conditions, and inhabits only the sandy well-drained lands. In the moist low-lands the cray fish are the most conspicuous borers, bringing up large amounts of the sub-soil to the surface. This type of land is familiarly known as "crayfish" land. Among the other borers which affect soils may be mentioned the earthworms, ants and "gophers," the last mentioned being a term applied to a species of land tortoise.

#### ACCUMULATION OF DISINTEGRATED MATERIALS.

The material resulting from the disintegration of rocks may remain in place as formed, or may be transported a greater or lesser distance. The agencies of transportation are numerous. The work of boring animals and plants referred to above assist in the transportation of soils by loosening the material and bringing it to the surface. The wind is an agent in transportation, the finer particles of the soil being freely moved by the wind. The extensive line of sand dunes bordering the Florida coast are chiefly wind blown. The valleys and depressions are continuously receiving small additions of fine sand and dust particles blown in by the wind. The chief agent of transportation

of soils, however, is water, the amount of soil transported by water being much greater than that of all other factors combined.

#### INFLUENCE OF DRAINAGE CONDITIONS ON SOILS.

The soils are affected by drainage conditions in various important ways, to only a few of which it will be possible to refer in this paper.

*Organic Matter:*—The organic matter of virgin soil is controlled to a large extent by drainage, together with the atmospheric and climatic conditions. Moisture, owing to the extent to which it retards oxidation, is a great preservative of organic matter. Muck accumulates only where the amount of water in or over the soil is sufficient to retard the decay of the vegetation. On the other hand, where the drainage is good and the soils exposed to the direct rays of the sun, the organic matter natural to the soil oxidizes and largely disappears.

*The Color of Soils:*—The color of soils, which is an important guide in soil classification, is dependent upon chemical reactions which are controlled to a large extent by the drainage conditions. The chief mineral stain in soils is iron in its varying forms. Those soils and subsoils that are thoroughly saturated with water at all times are likely to be dark or drab in color. The dark color is due to the fact that the iron is in an unoxidized or deoxidized condition. When partly, although imperfectly, drained, soils assume a mottled appearance, the mottling being due to the partial oxidation of the iron. The bright red soils are those in which the iron has been thoroughly oxidized and exists in the non-hydrated form, hematite. The ochre yellow soils are believed to be stained in most cases by the hydrated iron oxide. Those soils which lie on the slopes and are well drained and are rapidly renewed by the addition of soil material from be-

neath are most frequently red in color. On the other hand, the ochre yellow soils are found in areas where both drainage and aeration are good, but where the conditions are such that there is little or no surface wash, and where consequently the renewal of soil is slow. It is probably true that red soils when long exposed to the air and to moisture such as is afforded by capillary movement, change over to yellow soils, the change in color being due to the hydration of the iron oxide.

*The Water Table:*—By the term water table is meant the level at which water stands in the soils. Above this level, while the soils may be and usually are moist, the moisture is that due to capillary movement of water and the soils are aerated. At and below this level the soils are saturated and the air is practically excluded. The physical and chemical conditions above and below the water line are consequently in marked contrast. Above the line the oxidizing processes prevail, below the line the de-oxidizing processes prevail. The minerals above the water line tend to assume the form of oxides; while below the water line the minerals more frequently exist as sulphides or sulphates. Above the water line the movement of water following heavy rains is free and solution is active; below the water line the movement of water is sluggish and limited and deposition instead of solution may occur.

*Hardpan:*—The hardpan of the palmetto flatwoods of Florida and other coastal plain states affords a striking illustration of the relation of the soil conditions to the water line. The hardpan forms at the average level of the water table. It consists of a stratum stained dark or chocolate color by organic matter. During the dry seasons when the water table falls below its average level the hardpan is firmly cemented, presumably by the coating of organic matter. In this condition it can scarcely be penetrated by the soil auger, and interferes with the



movement of water by capillarity. During the rainy season when the water table rises above the average level, the hardpan stratum becomes saturated with water and tends to disintegrate. Although many details of the formation of hardpan remain to be explained, it is evident that organic matter from the surface stratum is carried downward in some form by the water and is reaccumulated in the hardpan stratum.

*Translocation of Clay Particles:*—Another important feature of the drainage conditions is the translocation of clay particles. By this term is meant the removal of the finely divided clay particles from the soil near the surface and their reaccumulation at a lower level. This process is of special importance in Florida. The soils over large areas in central Florida are derived from a clayey sand rock. The clay in this formation which acts chiefly as the cementing material is in a very finely divided condition. Upon the disintegration of the formation, the clay particles are loosened, and are carried by the percolating waters to a lower level, and are there reaccumulated. Under conditions of good surface drainage and heavy rainfall this process long continued results in washing the sand free of clay to a considerable depth and in the accumulation of an increased amount of clay in the stratum beneath. The dividing line between the sand washed free of clay and the stratum beneath in which the clay occurs in excess is often a well defined line. The clay stratum accumulated in this way is sometimes referred to as hardpan although it is totally different in character from the hardpan of the flatwoods.

#### PLANT FOOD DERIVED FROM THE SOIL.

Of the eighty or more known chemical elements about ten are believed to be essential to the growth of plants. Of these six are derived by the plant wholly and the sev-

enth chiefly from the soil. The others are taken by the plant either from the atmosphere or from water. The elements taken entirely from the soil are calcium, iron, magnesium, phosphorus, potassium and sulphur. Nitrogen is taken chiefly from the soil, although the group of plants known as legumes are able to take nitrogen from the air. The remaining essential elements, carbon, oxygen and hydrogen, are taken directly from the air and the water, the carbon dioxide gas of the atmosphere, and water absorbed through the roots, being the sources of supply. As regards the amounts of the several elements the carbon, oxygen and hydrogen taken from the air and water make up approximately 95 per cent of the plant structure by weight, the seven elements taken from the soil combined making up only about 5 per cent by weight. Although required in such relatively small quantities the elements derived from the soil are none the less necessary, and if any one of the seven is lacking or deficient or not available, the productiveness of the soil is thereby reduced.

#### THE SOILS OF FLORIDA.

In order to understand the soils of Florida it is well to bear in mind the character of the parent formations from which they originated, the conditions under which the soils accumulated, and the climatic conditions to which they have been subjected since their formation.

A consideration of the character of the formations from which the soils were derived involves a review of the early history of Florida. In early geologic time the land area that we now know as Florida was submerged and formed at that time a part of the ocean bed. During its period of submergence geologic formations were accumulating. It was not until the area became dry land that soils began to form. However, the kind of materials that accumulated while the area was submerged

determined to a large extent the character of the soils that were to form after the area became dry land.

It is not difficult to understand the kind of materials that accumulated in the ocean bed during the period of submergence, since similar materials are still accumulating under similar conditions. Sand and shell deposits are being formed along the shore at present as in the past. Off the coast near the mouths of large rivers clays, muds and sands are deposited forming clays, shales and sandstones. Those who have visited the Florida keys along the southeast coast from Miami to Key West cannot fail to have observed that limestone is there rapidly forming. The clear waters are favorable to marine life, including many shells and other forms having calcareous skeletons. After the death of the animal, the shell, more or less broken by the waves, falls to the bottom. Large coral masses are frequently rolled about in the shallow water on the reefs and more or less completely ground to pieces. So abundant is the ground up and fragmental material in these shallow waters that following a storm the water becomes milky white with the material in suspension, which again settles to the bottom when the water becomes quiet.

We are not, however, confined to analogy to determine the conditions that prevailed while Florida was submerged. The limestone, sandstone, clay and shell deposits that were formed during that time tell their own story of the conditions under which they were deposited.

The oldest of the formations that we now find exposed at the surface in Florida is an extensive limestone known as the Vicksburg Limestone. This formation underlies all of Florida and parts of the adjoining states. In central and northern Florida it is frequently exposed at the surface, and hence affects the soils. In eastern and southern Florida it lies buried beneath later formations to such a depth as to have no appreciable ef-

fect on soils. The conditions which prevailed while this limestone was being formed, as shown by the rock itself, were as follows: A clear sea of medium depth, free, or nearly so, from land sediment. In this sea marine life abounded. Minute organisms known as foraminifera were particularly abundant, the shells of these small animals making up the greater part of the deposit.

Along with these minute shells are larger shells, some corals, sea urchins and various other animals. That these conditions prevailed through a long period of time is evident from the fact that limestone accumulated to a thickness of several hundred feet.

Masses and layers of flint are now frequently found in this formation, but these have been subsequently formed by replacement of calcium carbonate by silica carried in solution by water which circulates freely through the limestone. Locally also the limestone has become compact and close grained. This change also is to be attributed to solution and deposition by the underground waters.

The localities where the Vicksburg limestone is exposed at the surface in north central Florida are numerous. It is found in the sinks on the University grounds near Gainesville; in Alachua sink at the edge of Payne's prairie; in practically all of the phosphate pits in Alachua, Columbia, Suwannee, Marion, Levy, Citrus and Hernando Counties. In western Florida it is exposed in Jackson and Washington counties. When at or near the surface this formation has an important influence on the formation of soils.

After the Vicksburg Limestone was formed in the Florida ocean the conditions changed somewhat, and an increased amount of sediment was washed in from the land. This in turn caused the marine life in the ocean to become less abundant. The deposits that were ac-

accumulated include impure or clayey limestones, and later when the amount of wash from the land had further increased calcareous clays and sandstones were formed. The deposits that were formed under these changed conditions are known as the Apalachicola group of formations. They overlies the Vicksburg Limestone along the Apalachicola River in western Florida and along the Gulf coast in southern Florida.

It is evident that during these changes of conditions, the Florida sea was becoming more shallow, and that the deposits that formed were more local in character. As the waters became more shallow the conditions were favorable locally for the development of shell marls. Such marl deposits are found in various parts of the State.

In late geological time there was formed the extensive limestones that border the coast from St. Augustine to Key West and underlie likewise the Everglades and the extreme south end of the peninsula. These limestones vary in character. Along the Atlantic coast from St. Augustine to Brevard County shell rock known as coquina, predominates. At Miami and at Key West the limestone is oolitic in character. Along the keys from Key Largo to Knights Key coralline rock is found, the only true coralline limestone in Florida.

In passing thus hastily over the formations that succeeded the Vicksburg Limestone, it is not intended to imply that these are not of importance in the problems of soil formation. On the contrary, they are very important, but these later formations are more or less local in character, and it is scarcely possible to give at this time a detailed description of each. In the publications of the State Geological Survey, particularly in the Fourth Annual Report, 1912, will be found a fuller account of these deposits in their relation to the formation of soils.

*Conditions Under Which the Soils Accumulated:—*

Soils are materially affected by the conditions under which they accumulate, and a single formation may give rise under varying conditions to radically different soils. The influence of drainage on the amount of organic matter, color, physical character and fertility of soil has already been discussed. The hardpan, a special feature arising from the drainage conditions was also described. The bright red soils and ochre yellow soils are records of varying stages of chemical action controlled by the condition under which the soils are formed. Some large areas in Florida are particularly well drained, so much so that almost no surface water is to be found. Other areas are poorly drained, affording conditions favorable for the accumulation of dark colored or muck soils. The great diversity in the drainage and other conditions in Florida, as well as variation in the parent formations, has resulted in a wide variation in the soils found in the State.

*Climatic Conditions:—*The climatic conditions to which soils have been subjected have an important bearing on their character. It is well known that the soils of arid regions differ materially from those of regions of average or heavy rainfall. In countries where soils are but little washed by rainfall the soluble constituents accumulate, not infrequently as in the case of alkali lands to an extent that is injurious to plants. In regions of medium and heavy rainfall more or less of the soluble ingredients are removed from the soils. In fact, fertilizers are added to soils to replace constituents that have been removed in solution by rain water. Thus a heavy annual rainfall, while it frees the soil from such deleterious constituents as alkalies, and supplies the soil moisture so essential to plant growth, yet takes its toll in the form of essential plant food dissolved by the rain-water while passing through the soil.

The amount of rainfall in Florida varies in the different sections of the State, being heaviest in west Florida and at one or two stations along the east coast, while Key West in extreme southern Florida is below normal. The average rainfall for the State as a whole is about 54 inches per annum.

#### CLASSIFICATION OF SOILS IN GENERAL.

A satisfactory classification of soils is difficult, and the subject may be approached from any one of several different viewpoints. In fact, various classifications have been proposed to serve various purposes. A common classification is that in which the soils are classed in accordance with their manner of formation as residual, transported, or colluvial.

*Residual Soils:*—The residual soils in this classification are those that have formed in place. Under these conditions the parent rock from which the soil is derived lies beneath the surface at a variable depth, depending on the duration and intensity of the weathering processes and upon the surface contour, rainfall, surface wash and other conditions. On the steep slopes little or no soil accumulates, being removed by surface wash as rapidly as formed. On the more gentle slopes and level lands, if the weathering processes have been long continued, soil may accumulate to a great depth. The class of residual soils may be sub-divided into those derived from igneous rocks and those derived from sedimentary rocks. Those derived from sedimentary rocks may be designated as residuo-sedimentary. The soils derived from igneous rocks possess certain distinctive characteristics due to the fact that the parent rocks are chemically and mineralogically complex, and to the fact that the soils have in no stage been subjected in any marked degree to the assorting power of wind or wa-

ter or other agencies. The residuo-sedimentary soils on the contrary are derived from rocks the materials of which in a previous stage of disintegration were more or less perfectly assorted by wind or water or other agencies. For this reason the sedimentary rocks give rise to soils less complex mineralogically and probably also less complex chemically than the soils from the igneous rocks.

*Transported Soils:*—The transported soils are those that have been moved more or less from the place where originally formed, and have been redeposited at another locality. The importance of this process arises from the fact that in being transported the soil materials are subjected to more or less assorting. The alluvial soils of the river valleys represent the finer materials carried by the water of the river at flood stages. The wind blown soils are designated as aeolian.

*Colluvial Soils:*—The colluvial soils are those that have been but slightly moved from the place where originally formed. They are found chiefly along hill sides, being due largely to creep of the soils, or to land slides which carry the soil materials to a lower level and mix it to a limited extent with soil materials from other sources. The colluvial soils differ from the residual soils in that they have been somewhat removed from their place of formation. They differ from transported soils in that they have not been subjected to the assorting of materials to any appreciable extent.

*Common Terms Applied to Soils:*—Another classification of soils in common use is that which refers to the soil ingredients rather than to the manner of formation. The clay soils are those in which clay predominates. Sandy soils are those in which sand is an abundant mineral constituent. Silty soils consist of finer materials, including fine sand and finely divided clay. Loams are those soils that have an admixture of sand and clay. Other terms, as



calcareous, ferruginous and muck soils, are self-explanatory. The clay soils are often referred to as heavy, and the sandy soils and loams as light, referring to the ease with which they may be cultivated. The heavy soils, although more difficult to farm, are frequently very durable owing to their clay ingredients, the decomposition of the clay minerals supplying plant food.

*Specific and Technical Soil Names:*—For convenience of description and reference in detailed soil surveying and mapping specific names are applied to soils. The most extensive system of soil nomenclature now in use is that established and followed by the Bureau of Soils of the United States Department of Agriculture. According to this system the whole territory of the United States is divided into thirteen physiographic divisions or soil provinces. The soils in each province are grouped in certain main divisions designated as soil series. Each series in turn includes one or more soil types. The soil series is defined as including soils that are alike in origin, color and in some physical properties. The soil type, or soil name, is a more definite unit than soil series, and applies to a particular kind of soil within the series. The soil name is formed by adding to the name of the series a term descriptive of the soil. Thus the Norfolk sand refers to a soil in the Norfolk series in which both soil and sub-soil are sand. Similarly, Portsmouth sand refers to a soil of the Portsmouth series having a sandy top soil and sub-soil. The texture of the soil may be further indicated by introducing a descriptive term such as coarse sand, fine sand, or very fine sand. In describing soils the depth of three feet is taken as a standard, and if a clay sub-soil is found within this depth the soil is termed a loam. Norfolk sandy loam thus means a sandy top soil and a clay sub-soil within a depth of three feet or less. Portsmouth sandy loam, or fine sandy loam, refers to soils of the Portsmouth series having a clay sub-

soil within three feet of the surface. While the introduction of specific soil names is desirable in detailed soil surveys it will not be necessary to use these terms in the general discussion of the Florida soils which follows.

#### CLASSIFICATION OF THE SOILS OF FLORIDA.

The soils of Florida are extremely varied, yet for the purposes of a general survey, representative types of country may be recognized in which particular soils predominate. The classification that is here proposed is based upon the character of the soil and sub-soil, the amount of organic matter in the soil, the drainage, the native vegetation, and upon such other conditions as may be readily determined. The terms used are descriptive, and are not intended as technical names of soils. The use of technical terms has been intentionally omitted from this paper.

#### PINE LANDS.

About 70 or 75 per cent of the total land area of Florida was covered originally by pine forests. In northern, central and western Florida the long leaf, or yellow pine, *Pinus palustris*, is the prevailing forest tree, while in southern Florida the Cuban pine, *Pinus caribaea*, predominates. The short leaf pine, *Pinus echinata*, grows in the hammock type of country in association with deciduous trees. The same is true of the spruce pine, *Pinus clausa*, which grows extensively on quiescent dunes bordering the coast. A few other pine species are found, but they occupy less extensive areas. The pine lands are varied, and several more or less distinct types may be recognized.

*Rolling, Upland or Well-Drained Pine Lands:*—The rolling pine lands include well drained areas, also known as high or upland pine. This is an extensive type of country, and is itself varied in soils and topography. The

prevailing forest tree is the long-leaf pine. As a rule there is little or no undergrowth, although in the more sandy localities small oaks are found. Saw palmetto occurs rarely and only to a limited extent.

The top soil in the rolling pine lands is light colored

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Fig. 1.—Well drained pine land, two miles south of Mayo in Lafayette County. The prevailing timber growth is long leaf pine.

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or gray, or dark from the admixture of organic matter. The depth to the clay is variable, and several grades of soil in this type of country are recognized, depending chiefly upon the texture of the soil drainage conditions and the character of the subsoil. In some sections the

underlying sandy clay is found at a depth of one to two feet. In these areas if well drained the clay usually contains iron pebbles and is oxidized red in color. Elsewhere the clay lies from three to six or more feet beneath the surface and in the extremely sandy soils the clay lies at an even greater depth.

Some of the very desirable general farming lands are found in the belt of rolling pine land. This is true in particular of those soils having clay subsoil within a few feet of the surface. Other sandy soils in which the clay is not within a determinable depth are less productive, although even these more sandy soils under proper cultivation are made to yield satisfactory returns. In the heavier types of soils having a clay subsoil near the surface the pine when removed will reforest itself naturally, but on the very sandy soils the pine when cut off is quickly replaced by a dense growth of scrub oaks.

The rolling pine lands are too extensive to call for specific reference to areas. The interior of the State is chiefly of this type. A large number of soil types are included which can be properly separated and mapped only by detailed surveys. The pine lands in the limestone sections of the State present many differences in topography, in drainage and in grade of soils, from the pine lands in the non-limestone sections.

The following is an analysis of a sample of the well drained pine land of Osceola County. The principal vegetation is pine and scattered oak, and wire-grass. The sample was collected by R. E. Rose. The analysis is taken from Bulletin 43 of the State Experiment Station.

## Analysis of Virgin High or Rolling Pine Soil and Sub-soil.

	Soil.	Sub-soil.
Coarse earth .....	.90	.20
Fine earth .....	99.10	99.80
Humus .....	.38	.97
Nitrogen .....	.0350	.0182
Moisture .....	.1860	.3300

## Analysis of the Fine Earth:

Insoluble residue .....	97.2280	97.7080
Potash ( $K_2O$ ) .....	.0077	Trace
Soda ( $Na_2O$ ) .....	.0067	.0278
Lime ( $CaO$ ) .....	.0225	.0000
Magnesia ( $MgO$ ) .....	.0144	.0063
Ferric Oxide ( $Fe_2O_3$ ) }		.1937
Alumina ( $Al_2O_3$ ).... }	.0718	.2183
Phosphorus pentoxide ( $P_2O_5$ )...	.0032	.0080
Chlorin .....	Trace	Trace
Sulphur trioxide ( $SO_3$ ) .....	.0060	Trace
Carbon dioxide ( $CO_2$ ) .....	.0000	.0000
Water and organic matter .....	2.7980	1.9500
Total .....	100.1583	100.1101

The following analysis is also taken from Bulletin 43 of the State Experiment Station. This sample was collected by C. W. Wilson and was taken from near Lake Elbert, in Polk County. The principal growth upon the land is small pine, with more or less oak. The sample represents the sandy rolling lands of the lake region:

## Analysis of Virgin Rolling Pine Land, Soil and Sub-soil. of the Lake Region.

	Soil	Sub-soil.
Coarse earth .....	8.83	7.16
Fine earth .....	91.17	92.84
Humus .....	.54	.17
Nitrogen .....	.0182	.0014
Moisture .....	.1800	.1000

Analysis of Virgin Rolling Pine Land, Soil and Sub-soil, of the  
Lake Region—Continued.

Analysis of the Fine Earth:

	Soil.	Sub-soil.
Insoluble residue .....	97.4560	93.3770
Potash ( $K_2O$ ) .....	Trace	Trace
Soda ( $Na_2O$ ) .....	.0234	.0344
Lime ( $CaO$ ) .....	.0125	.0000
Magnesia ( $MgO$ ) .....	.0261	.0117
Ferric Oxide ( $Fe_2O_3$ ) }		.3487
Alumina ( $Al_2O_3$ ).....}	.4673	.1912
Phosphorus pentoxide ( $P_2O_5$ )...	.0272	.0176
Chlorin .....	Trace	Trace
Sulphur trioxide ( $SO_3$ ) .....	Trace	.0000
Carbon dioxide ( $CO_2$ ) .....	.0000	.0000
Water and organic matter.....	2.0140	1.0194
Total . . . . .	100.0270	100.0000

FLATWOODS.

The term "flatwoods" is applied to pine lands which are more level and consequently less well drained than the rolling pine lands.

*Palmetto Flatwoods*:—A widely prevailing type of country in parts of peninsular and west Florida is that which may be designated from its characteristic vegetation as palmetto flatwoods. The native timber growth is pine of several species, among which the long leaf, or yellow pine, *Pinus palustris*, predominates, although in extreme southern Florida the species is replaced by the Cuban pine, *Pinus caribaea*. The characteristic undergrowth is wire grass and the saw palmetto (*Serenoa Serulata*). The palmetto flatwoods are in general level and sometimes so flat as to be more or less flooded during the rainy season. These overflows, however, are temporary, as the palmetto will not withstand excessive or prolonged flooding. The smaller streams are bordered by more or less swamp of hardwood growth. The larger streams, as

a rule, are confined to definite channels in the palmetto flatwoods, have sandy banks and are not bordered by swamps other than the alluvial swamps of the rivers. Small circular depressions occupied by swamps of cypress or of hard wood trees are frequent in the palmetto flatwoods.

The soil is sandy and usually contains sufficient organic matter to give a gray or dark color. The palmetto flatwoods is very generally underlaid by a dark or chocolate-colored stratum known as hardpan. The dark color is chiefly due, in the samples which have been analyzed, to organic matter. The coloring is most intense in the upper part of the stratum. After passing one to three inches into the stratum the color grades to a chocolate or coffee grounds color, which in turn gives place at a variable depth to light-colored sand. The pine tree on saw palmetto land rarely grow as large as on the other pine lands. The tap root upon reaching the hardpan stratum usually curls up or flattens out. The hardpan is the most characteristic and persistent feature of the palmetto flatwoods. Hardpan in the palmetto flatwoods is frequently found at a depth of 18 to 30 inches, although it may lie deeper, its occurrence and depth and thickness being controlled by the drainage conditions. During the dry season the hardpan becomes indurated, and is said to interfere with the return of water to the surface by capillarity. In the case of irrigated lands this objection is overcome, and it is a notable fact that some very successful trucking lands of the State are irrigated lands of this type, having, however, a clay sub-stratum beneath the hardpan. The following analysis is of a sample of hardpan.

Analysis of a sample of hardpan from palmetto flatwoods; sample collected by R. M. Harper; analysis by A. M. Henry, Assistant State Chemist:

	Per Cent.
Silica .....	95.62
Volatile or combustible matter.....	3.33
Undetermined (mostly clay) .....	1.05
Total .....	100.00



Fig. 2.—Typical Palmetto flatwoods.

The most extensive areas of palmetto flatwoods lie bordering, or at least, near the coast. It is not, however, confined entirely to the coast, but occurs inland where conditions are favorable. Local areas of palmetto flatwoods are found interspersed with other types of soil



through the greater part of peninsular Florida, except in the limestone section east of the Everglades in southern Florida, where a distinct type of palmetto pine land is found. West of the Apalachicola River, aside from the strip bordering the Gulf coast, the palmetto flatwoods are not extensively developed.

Following is the analysis of a typical sample of the soil and sub-soil of the palmetto flatwoods taken by R. E. Rose in Osceola County. The chief vegetation growing upon the soil is pine, saw palmetto and wire grass. The analysis is from Bulletin 43 of the State Experiment Station, page 666.

Analysis of Virgin Soil from Palmetto Flatwoods.

	Soil.	Sub-soil.
Coarse earth .....	1.10	.40
Fine earth .....	98.90	99.60
Humus .....	1.02	.38
Nitrogen .....	.0490	.0014
Moisture .....	.3800	.1500

Analysis of the Fine Earth:

Insoluble residue .....	96.6970	98.7755
Potash (K <sub>2</sub> O) .....	.0073	Trace
Soda (Na <sub>2</sub> O) .....	.0438	.0172
Lime (CaO) .....	.0150	.0000
Magnesia (MgO) .....	.0252	.0054
Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> )	.0854	.2712
Alumina (Al <sub>2</sub> O <sub>3</sub> ) .....		.1733
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> )...	.0096	.0080
Chlorin .....	Trace	Trace
Sulphur trioxide (SO <sub>3</sub> ) .....	Trace	.0042
Carbon dioxide (CO <sub>2</sub> ) .....	.0000	.0000
Water and organic matter .....	3.1167	.8620
Total .....	100.0000	100.1168

The following is the analysis of a sample of the palmetto flatwoods near Punta Gorda in DeSoto County. From Bulletin 68 of the State Experiment Station, by

H. K. Miller and H. H. Hume. The chief vegetation is Cuban pine and saw palmetto.

Analysis of Sample of Virgin Flatwoods.

	Soll.	Sub-soll.
Insoluble matter .....	98.9060	99.4696
Soluble silica .....	.0120	.0195
Lime .....	.0476	.0300
Magnesia .....	.0144	.0099
Potash .....	.0110	.0061
Iron and alumina .....	.0725	.0407
Phosphoric acid .....	.0050	.0068
Sulphur trioxide .....	.0068	.0051
Volatile matter .....	.9852	.4480
Humus .....	.4981	.2550
Nitrogen .....	.0250	.0090

Mechanical analysis of same, made by the Bureau of Soils, of the United States Department of Agriculture.

	Soll.	Sub-soll.
Organic matter .....	1.16 per cent	.58 per cent
Gravel, 2 to 1 mm.....	.14 "	Trace "
Coarse sand, 1 to 5....	2.84 "	2.00 "
Medium sand, .5 to .25..	5.72 "	6.02 "
Fine sand, .25 to .1 mm.	73.50 "	75.02 "
Very fine sand, .1 to .05 mm.....	15.00 "	15.84 "
Silt, .05 to .005 mm.....	0.56 "	.32 "
Clay, .005 to .0001 mm..	1.12 "	.30 "

*Open Flatwoods*:—Another extensive type of country is that which may be designated as the open flatwoods or pine meadows. This type of country has practically no undergrowth other than the heavy mat of grass, chiefly wire-grass. The forest growth is chiefly the long leaf pine and slash pine. The streams through this type of country are flat bottomed and bordered by a dense swamp growth of hard wood trees of various kinds. The land is very level, so much so that drainage is imperfect and the land is more or less flooded during the summer rainy

season. Ditching is necessary in order to drain the land for farming. The long leaf pine when cut off of this type of land reforests itself. The top soil is colored dark by the presence of organic matter. A few inches beneath

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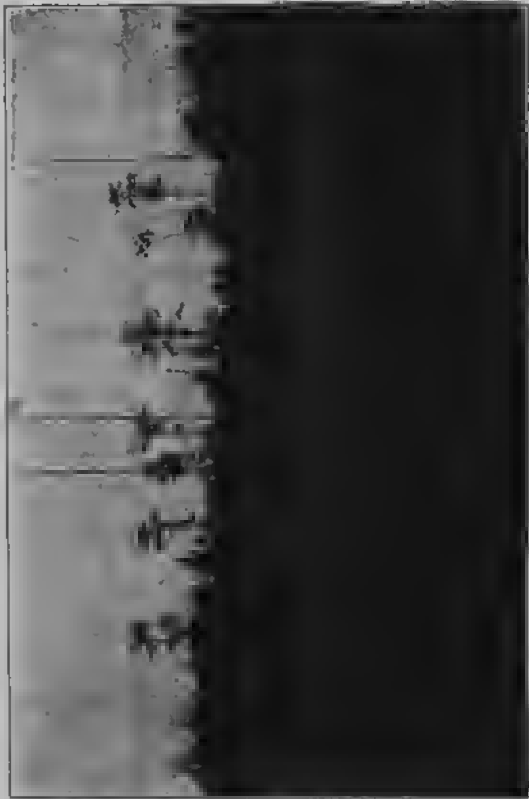


Fig. 3.—Open flatwoods in Nassau County showing rise to higher land in the background.

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the surface the soil becomes dark gray. A clay sub-soil may or may not be present and several varieties of soil may be distinguished, depending upon the texture, the subsoil and the drainage conditions. Hardpan is not associated with this type of soil.

Large areas of soil of this type occur in both east and west Florida. In Nassau County a large area lying between the Seaboard Air Line Railway on the east and the Atlantic Coast Line Railroad on the west, reaching to the St. Marys River, is of this type. In Duval county a considerable area of this class surrounds Baldwin near the west line of the county. Along the St. Johns River areas of this type of soil occur at several places. In west Florida areas of this type are extensively developed. When cleared and sufficiently drained this type makes desirable farming and trucking lands.

Much of the lands of the Florida flatwoods can be made available for farming by shallow ditching such as each farmer may make for himself at a nominal expense. However, there are large areas that would be benefited by more extensive systems of drainage. Such operations are being carried on in different parts of the State either by communities or by private parties.

#### PINE LANDS OF THE MIAMI LIMESTONE.

A considerable area of country lying along the eastern border of the Everglades and extending from the Everglades to the Atlantic Ocean is underlaid by limestone and supports a characteristic growth of Cuban pine and saw palmetto. The limestone is oolitic in character and lies very near the surface, being frequently exposed or covered only by a thin mantle of loose light colored sand. The roots of the pine being unable to penetrate the rock, spread out horizontally along the surface, the pine on this land having no distinct tap root. Although the soil covering overlying the limestone is of no great thickness, owing probably to the relatively short time, geologically, that the surface has been exposed to the soil-forming processes, yet for fruit growing and trucking purposes this limestone soil has long since proved its value.

The following analysis of samples of virgin rock soil from the Biscayne Bay, in Dade County, were made by A. A. Persons, and are published in Bulletin 43 of the Florida Experiment Station, pp. 653-655. The analyses were made in accordance with the methods adopted by the Association of Official Agricultural Chemists in 1895:

Analysis of Virgin Rocky Soil from Biscayne Bay.

	No. 1.		No. 2.	
	Surface.	Sub-soil.	Soil.	Sub-soil.
Coarse earth .....	7.20	7.40	2.60	7.00
Fine earth .....	92.80	92.60	97.40	93.00
Humus .....	2.77	.10	.23	.21
Nitrogen .....	.1666	.000	.0182	.0042
Moisture at 100 C.....	1.2160	.0380	.1660	.1720
Analysis of the Fine Earth.				
Insoluble residue .....	87.7215	99.0850	98.0255	96.5225
Potash (K <sub>2</sub> O) .....	.0043	.0024	.0178	Trace
Soda (Na <sub>2</sub> O) .....	.0812	.0748	.0804	.1046
Lime (CaO) .....	.1275	.0425	.0725	Trace
Magnesia (MgO) .....	.0612	.0108	.0351	.0387
Ferric oxide (Fe <sub>2</sub> O <sub>3</sub> ) .....	.0278	.0914	.2044	.6519
Alumina (Al <sub>2</sub> O <sub>3</sub> ) .....	.0682	.0162		1.0363
Phosphorus Pentoxide(P <sub>2</sub> O <sub>5</sub> ) .....	.0240	.0224	.0256	.0268
Chlorin .....	Trace	Trace	Trace	.0483
Sulphur trioxide (SO <sub>3</sub> )....	.0103	.0086	.0086	.0103
Carbon dioxide (CO <sub>2</sub> ) ....	.0000	.0000	.0000	.0000
Water and organic matter.	11.4600	.6620	1.5301	1.5606
Total .....	99.5860	100.0161	100.0000	100.0000

HAMMOCK LANDS.

The term hammock is applied to lands having a heavy growth of trees or shrubs among which usually the deciduous or hard-wood trees predominate. The hammocks include several distinct types of soil, and although not extensive in area, are important agriculturally.

*Calcareous Hammock*:—The calcareous hammock lands are underlaid at a depth not exceeding a few feet by some form of calcareous deposits, as marl, limestone, shell rock or shells. The native vegetation in the calcareous hammocks includes usually a variety of plants adapted

to a calcareous soil. Among these are many hard-wood trees and shrubs, and where sufficiently moist the cabbage palmetto. The limestone, marl or shell, as the case may be, often lies practically at the surface or is covered by

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Fig. 4.—Calcareous hammock land. Photograph taken in Turbull hammock, one mile west of Daytona. The underlying material here is shell marl.

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only a thin layer of soil. Such soils are fertile and lasting, and are well adapted to trucking crops.

Some extensive hammocks underlaid by limestone are found along the Gulf coast in Hernando, Citrus, Levy, Lafayette, Taylor, Jefferson and Wakulla counties. The hammocks in Wakulla and Jefferson counties are under-

laid by the Chattahoochee limestone. The more extensive hammocks of Levy, Citrus, and Hernando counties are underlaid by the Vicksburg Limestone. Hammocks resting upon the Vicksburg are found in the interior of the State in Alachua, Marion and Sumter counties.

An extensive line of calcareous hammock land underlaid chiefly by shell marl and shell rock is found bordering the Atlantic coast almost continuously for a distance of about 150 miles. This east coast hammock rests chiefly upon and is caused by the coquina shell rock and marl. In the vicinity of Ormond, Daytona and New Smyrna this hammock belt reaches a width of from one to three miles. Another considerable development of the hammock is found a short distance north of Titusville. In these localities the hammock is known as Turnbull's hammock, being a part of the Turnbull grant made during the days of English rule. At Rockledge is seen another excellent development of the hammock belt immediately bordering the coast.

The Caloosahatchee River and some of its tributaries is bordered by calcareous hammock land, the formation giving rise to the hammock being the Caloosahatchee marl of Pliocene age. Many smaller calcareous hammocks occur throughout the State.

*Clay Hammock Lands:*—Another distinctive type of hammock land is that which may be designated as the clay hammock lands, a clay sub-soil being frequently present. This type is due to the topography and is found only in rolling, well drained or somewhat hilly sections, where the slope is sufficient to permit a partial removal of surface sands, thus permitting the addition of new soil from the underlying clays. The result is a strong and well-drained soil. The native vegetation includes hard wood trees of several varieties, among which are oak and hickory; the short leaf pine is also frequently found on this type of soil.

The largest areas of this type are the hammock lands of Leon, Jefferson, Madison and Jackson counties. Holmes valley in Washington County, and Euchee valley in Walton County represent a similar hammock type due to similar causes. The Holmes valley hammock lies along the border line between the lowlands of Holmes Creek and the elevated sandy plateau of the interior of the county. The surface wash along the foothills of this plateau is sufficient to remove the surface sand and to expose in places the underlying sandy clay, giving rise to a rolling hammock land with the usual hard wood and short leaf pine vegetation. Euchee valley represents the foothills encountered in passing from the lowlands of the Choctawhatchee River to the uplands of the interior of Walton County.

#### SAND HILLS.

This type of country is rolling and distinctly sandy. The native growth is a sparse scattering of pine and a dense growth of scrub oak. There is a limited amount of organic matter in the soil, and the top soil may be bleached light colored, although a few inches beneath the surface the soil is usually light yellow in color. Although there are no surface streams the drainage of the sandhill country is good, as the rainfall passes at once into the sand. Hardpan was found in the sandhills at a depth of from twenty to twenty-five feet, this depth representing the water level at that particular locality.

#### THE SAND DUNES.

The sand dunes, recent and ancient, form by no means an unimportant type of country. These are found chiefly bordering the coast. Along the Atlantic coast sand dunes are found extensively. Near the north line of the State at Fernandina the dunes border the coast, and are form



ing at present. Passing south, a line of ancient and quiescent dunes borders the coast lying from one-half to one and two miles inland, for a distance of 200 miles. When formed these dunes probably faced the coast, the land lying then at a lower level than at present. A subsequent slight elevation of the land having extended the coast line a short distance beyond the dunes. Since the elevation, which occurred probably at the close of the Pleistocene time, these dunes have become quiescent and are now overgrown by the dense growth of vegetation, consisting of spruce pine and shrubby plants. At the extreme southern end of the State recent calcareous sand dunes occur. Along the Gulf coast of Florida low quiescent sand dunes are found bordering the coast in Lee, DeSoto, and Manatee counties. From St. Petersburg along the Gulf coast to Wakulla County the dunes are lacking. This coast is chiefly calcareous, representing that part of the coast line in which the Oligocene limestones border the coast. The western part of the Gulf coast from Franklin to Escambia county is a section from which limestones are absent and sandy clay formations are exposed. Along this coast the sand dunes are again found more or less continuously. Those of the mainland are mostly quiescent. When originally accumulated the sand of the dunes was probably homogeneous or nearly so. Subsequently under the weathering process a clear line of demarcation has been established between a top layer one to four feet in thickness and that which lies below. The top layer of sand is light colored or slightly gray near the surface from the accumulation of organic matter. At a depth of from one to four feet the color changes abruptly to a pale yellow. This line of demarcation follows the contour of the hill in a cross section of the dune. On the east border of Lake Kingsley in Clay County is found a series of dunes made up of white and unusually well-washed sands.

The sand dune land of southern Florida has been found

to be particularly well adapted to the growing of pine apples.

#### SCRUBS.

The native vegetation of the "scrub" is more or less dense, and is often an almost impenetrable growth of shrubs or stunted trees of various kinds. The top soil is frequently light colored, although where the vegetation is dense, some organic matter accumulates. Passing beneath the surface the soil as a rule becomes ochre yellow.

Somewhat extensive areas of scrub lands are found in central peninsular Florida. It is frequently associated with, but not confined to, the lake region type of topography. The scrub is well drained, since the rainfall passes at once into the sand. Sandy pine lands frequently give place to scrub without any apparent change in soil, topography or drainage conditions.

The present vegetation of the scrub has probably replaced an earlier growth of pine. This process of replacement of pine forests by the sand-loving species may be observed in many localities. The deciduous oaks are first to obtain a foot hold among the pines. These in turn give place to the evergreen oaks, which predominate in the scrub.

#### PRAIRIE AND SAVANNA.

The terms prairie and savanna are applied to lands that are level and devoid of trees or nearly so. The prairies as a rule are better drained than savannas, although many of the prairies that are entirely dry during the dry season are more or less flooded during the season of summer rains. The soil of the different prairies is so variable as scarcely to admit of a generalized description. Clays soils and sandy soils are included as well as dark and light colored soils. Many of the prairies that are

dry during a considerable part of the year have light sandy soils, the organic matter having been oxidized. Those prairies that are partly flooded retain proportionately more of the organic matter which gives the soil a dark color. Several of the large prairies or savannas of the State are described in the Third Annual Report of the Florida Geological Survey, pp. 43-76, 1910.

#### ALLUVIAL LANDS.

Many of the streams and rivers of Florida have flat bottomed valleys densely wooded with hardwood trees. Within these valleys the streams are often confined to no definite channel. During the summer, owing to the heavy rains, together with the impeded flow through the trees, the valleys are as a rule flooded. In many of these, the stream could be confined to a central channel and by clearing out the dense growth of trees a considerable part of the valley made available for agricultural purposes. However, the expense of clearing land of this kind is considerable, and notwithstanding its fertility, very little of it as yet has been reclaimed, and only a very small amount of the alluvial lands are now being used for agriculture.

The alluvial valley of the Apalachicola River has a width of from one to two miles. It has a rich sandy soil, but is flooded at high stages of the river and has been but little used. The native vegetation is a dense growth of hardwood timber. The Apalachicola unlike the other rivers of Florida, receives its headwaters from the Appalachian Mountains, and is less affected by the rainy season of Florida than by the melting of the snows of the mountains.

Those streams which flow through limestone country carry little or no sediments in suspension. Their channel is cut chiefly by solution. Such streams have sandy banks and little or no alluvial lands.

## SWAMP LANDS.

The term swamp is applied to overflowed land supporting a growth of trees. The swamps of Florida were described and classified in the Third Annual Report of the Florida Geological Survey, 1910. It is probable that the total swamp area of the State aggregates not less than 3000 squares miles, much of which is capable of being drained and utilized.

## MARSH AND MUCK LANDS.

When land is overflowed during all or nearly all of the year, the growth of vegetation falls beneath the water, is protected from decay and accumulates to form muck. When drained the muck lands make fertile soils. The muck lands may or may not support a timber growth.

The term marsh is applied to overflowed lands devoid of timber but supporting a heavy growth of coarse grass. Marshes may be of salt or fresh water. The salt or marine marshes are found bordering the coast and have been built up by the tide. They consist largely of silt, mud and clay with an admixture of organic matter. The marine marshes being within range of the tides can be reclaimed only by diking, although if reclaimed they would undoubtedly prove very fertile. The fresh water marshes afford conditions favorable to the accumulation of vegetable matter and are frequently underlaid by deposits of muck. The muck lands of Florida are extensive aggregating probably not less than 5000 square miles. The largest single muck area is the Everglades of southern Florida now being drained by the State. Many smaller muck areas occur widely scattered throughout the State.

## PHYSIOGRAPHIC DIVISIONS OF THE STATE.

The State as a whole may be divided into more or less

well marked natural divisions in which particular types of soil predominate. In the following pages the more conspicuous of these are briefly described, approximately in the order of their location in passing across the State from east to west and from north to south. It is sometimes assumed by those who are imperfectly acquainted with Florida that the State presents great uniformity and is lacking in diversity. On the contrary from an agricultural standpoint the State is highly diversified as will be evident from the description of the natural divisions which follows.

#### WEST FLORIDA PINELANDS.

The West Florida Pinelands embrace a large area of country extending from the west line of the State east to somewhat beyond the Apalachicola River, including parts of Escambia, Santa Rosa, Walton, Washington, Calhoun and Gadsden counties. As is invariably true of large areas a considerable diversity of soil conditions occurs. The prevailing type of country is non-calcareous rolling well-drained pinelands. The rivers have developed alluvial valleys. A limited amount of flatwoods are included, found for the most part bordering the river valleys. Several large rivers cut across this area and flow into the Gulf. The largest of these are the Apalachicola, the Choctawhatchee, and the Escambia. In passing inland from the coast the elevation rises to from 250 to 300 feet above sea level, the highest elevation in the State being found within this area in Gadsden County.

#### WEST FLORIDA COASTAL BELT.

The West Florida Pinelands are separated from the Gulf by a narrow belt of country designated as the West Florida Coastal Belt. This belt which is only a few miles wide extends from the Ocklocknee River on the

east to and beyond the west line of the State and includes the islands which border the coast, and a narrow strip of the mainland. The dunes, most of which are now quiescent, which border the mainland are within this belt. The soils are variable, aside from the sandy soil of the quiescent dunes, more or less muck and alluvial material has accumulated in the bays and ponds back of the line of dunes. The prevailing timber growth on the quiescent dunes is the spruce pine. Back of the dunes the prevailing timber is the long leaf pine.

#### EUCHEE VALLEY HAMMOCK LAND.

The Euchee Valley and Holmes Valley Hammock lands are small areas lying along the Choctawhatchee River valley and included within the large area designated as the West Florida Pinelands. The two areas are notable as being characteristic examples of the influence of topography on the development of soils. Each of these so-called valleys represents in reality the transition ground between the Choctawhatchee River Valley and the uplands of the interior of the county. Euchee Valley lies on the west side of the Choctawhatchee River and chiefly on the north side of Goose Creek and the west side of Sandy Creek, and consists of a succession of small hills giving a decidedly rolling topography. The red clay subsoil on the slopes lies near the surface. The forest growth is chiefly hardwood and short leaf pine hammock.

#### HOLMES VALLEY HAMMOCK LAND.

Holmes Valley which lies east of the Choctawhatchee River and bordering its tributary, Holmes Creek, represents the transition ground in passing from the river valley to the uplands of the interior. The area is from one to three miles wide and extends in a north-east to south-west direction a distance of 15 to 18 miles. The land

is rolling or hilly. The drainage is by small streams that cut across the area and flow into Holmes Creek. The native growth is short leaf pine and hardwood trees. The suggestion has been made that Holmes Valley represents an old lake bottom, this idea being advanced to account for the persistent fertility of the valley as well as for the type of soil and hammock growth. The origin of the so-called valley is however very evident. As this area lies on the border line between the valley and the uplands, the top covering of loose sandy soil is gradually removed about as rapidly as formed. Under these conditions the soil is rapidly renewed by the addition of newly disintegrated material from beneath, thus keeping up the fertility of the land. Under cultivation the surface wash has in some instances become so rapid as to be detrimental to the soils. In most instances excessive surface wash can be prevented by proper terracing. The hammock growth which is native to this type of soil is due to the soil and drainage conditions.

#### WEST FLORIDA LIMESTONE BELT.

The limestone belt of west Florida includes the northern part of Walton and Washington counties and nearly all of Holmes and Jackson counties. Limestone is extensively exposed at the surface along the Chipola River in Jackson County, and is occasionally exposed in the northern parts of Washington and Walton counties. Where not actually exposed it lies at no great depth. The near approach to the surface of the underlying limestone is in fact the chief distinguishing characteristic between this area and the West Florida Pineland area lying to the south and west. Near the Chipola River and elsewhere where the slope is considerable and the drainage good, red soils predominate together with hardwood and short leaf hammock growth. Long leaf pine is found on the more level lands.

## APALACHICOLA FLATWOODS.

The Apalachicola Flatwoods as here defined include the southern part of Calhoun and Liberty counties, nearly all of Franklin County, and the southwestern part of Wakulla County. The land is level and shallow ponds and bays are numerous. The Dead Lakes of Calhoun County are within this area. Long leaf pine is the prevailing timber growth. The soils are for the most part sandy or sandy loams, and are often dark colored owing to the presence of organic matter. Muck deposits are found in many of the ponds. Where the saw palmetto abounds a sub-stratum of hardpan is to be expected, but in the open flatwoods, large areas of which are found on either side of the Apalachicola River, hard pan is usually if not always absent.

## MIDDLE FLORIDA HAMMOCK BELT.

The Middle Florida Hammock Belt extends with some interruptions through Leon, Jefferson, Madison, Suwannee, Columbia, Alachua and Marion counties. Local areas also occur in Holmes and Jackson counties and are included in the west Florida limestone region already described. The drainage in the Middle Florida Hammock Belt is affected by the underlying limestone. The surface is rolling or somewhat hilly, and occasional flat bottomed lakes occur which occupy solution basins. The soils on the slopes are prevailingly red with a red clay sub-soil. Surface streams occur, although most of these terminate either in lakes or in sink holes through which they gain entrance to the underlying limestones, forming the disappearing streams characteristic of this type of country. This belt occupies the border land between the limestone and the non-limestone country. A second well marked belt of this type of country extends north and south through Citrus, Hernando and Pasco counties.



## MIDDLE FLORIDA FLATWOODS.

The Middle Florida Flatwoods is a relatively narrow belt of country which roughly parallels the Gulf and lies inland from 15 to 25 miles from the coast. This belt extends through and includes a part of Jefferson, Taylor, Lafayette and Levy counties. The prevailing timber growth is the long leaf pine interspersed with occasional bays which support a dense swamp growth.

## THE GULF HAMMOCK BELT.

The Gulf Hammock Belt is a strip of country which borders the Gulf coast from near St. Marks to Tarpon Springs. It is a limestone area and is in fact co-extensive with that part of the Gulf coast in which the limestone formations reach to tide-water. The underground water level in this section is near the surface and numerous large clear water springs emerge from the limestone and flow to the ocean. This coastal strip contains numerous large calcareous hammocks from which is derived the name of Gulf Hammock Belt. This area extends through and includes parts of Wakulla, Jefferson, Taylor, Lafayette, Levy, Citrus, Hernando, and Pasco counties. A belt of similar country is found extending north and south through Santa County.

## EROSION VALLEY OF THE SUWANNEE RIVER.

On either side of the Suwannee River in Florida is found a level belt of well drained land which is here designated as the erosion valley of the Suwannee River. On the Seaboard Air Line Railway this type of country is entered abruptly one or two miles east of Madison in Madison County, while on the east side of the river this type of country extends to the vicinity of Live Oak. Occasional sink holes are seen which reach through to an un-

derlying limestone. The soils are sandy loams overlying the limestone. Along the Withlacoochee River, a tributary of the Suwannee, this type of country extends to the Georgia line, although on the Suwannee proper it terminates somewhat above Suwannee Springs. Approaching the Gulf the banks of the river become low and flooded some miles below Old Town.

#### THE HARD ROCK PHOSPHATE BELT.

The Hard Rock Phosphate Belt is a characteristic type of country paralleling the Gulf and lying inland 25 to 30 miles from the coast. On the Gulf side it borders the Middle Florida Flatwoods, or where that belt is absent the Gulf Hammock Belt. This belt extends in well marked development through Suwannee, Southern Columbia, western Alachua, western Marion, Sumter, Citrus and into Pasco counties. It is found also west of the Suwannee River passing through Lafayette, Taylor and Jefferson counties although in less well defined and characteristic form. This belt is of great commercial importance since it includes the hard rock phosphate deposits. Few lakes or streams are found in the hard rock phosphate belt, as the rainfall enters through the loose surface material and passes directly into the underlying limestone. The underground water level lies as a rule at a greater depth beneath the surface than in the Gulf Hammock country. Numerous sinks form giving evidence of the continued active erosion by underground solution. The surface contour is rolling, there being no regularity of hills or valleys. Well drained sandy soils predominate in this area.

#### THE LAKE REGION.

The Lake Region includes a large area extending north and south through Clay, Putnam, eastern Marion, Lake,

Orange, and Polk counties and reaching into DeSoto County. Lakes, as implied by the name, are extremely numerous in this section of country. Surface streams are few as a greater part of the rainfall passes into the soils. The prevailing timber growth is the long leaf pine with as a rule very little undergrowth. The soils include chiefly light sandy loams overlying red sandy clays. Peat and muck deposits are very abundant in the Lake Region.

#### EAST FLORIDA PINELANDS.

The East Florida Pinelands include a large area lying in the north eastern part of the State including a part or all of the following counties: Columbia, Baker, Bradford, Nassau, Duval, Clay, Putnam, St. Johns, Volusia, Brevard, St. Lucie, Osceola, and Palm Beach counties. This area thus lies north and east of the Lake Region previously described. While the area presents much diversity the prevailing type of country is non-calcareous pinelands. The type of open flatwoods is more extensively developed within this area than elsewhere within the State. Palmetto flatwoods also are not lacking. The rise in elevation in passing inland from the coast is quite sufficient for good drainage, but the area is geologically recent and surface drainage has not fully developed, the stream channels being for the most part imperfectly developed. The prevailing timber growth is the long leaf pine. Some large muck land areas are found within this area particularly around the head waters of the St. Johns river.

#### THE ATLANTIC COAST HAMMOCK BELT.

The Atlantic Coast Hammock Belt is a narrow strip of hammock land which extends with some interruptions along the Atlantic coast from St. Augustine to or beyond Rockledge, a distance of about 150 miles. This

hammock rests upon and is developed from the coquina shell rock. The belt includes Turnbull and other well known hammocks along the east coast. The prevailing vegetation is a dense growth of cabbage palmetto and various hardwood trees.

#### ATLANTIC COAST DUNES.

A line of sand dunes extends with some interruptions from Fernandina at the northern line of the State south to New River in Dade County. The dunes are for the most part quiescent and support a growth of spruce pine. They lie back of the calcareous hammock belt being inland from one to two miles from the present coast. It is probable that the sand dunes are contemporaneous with the coquina rock. This part of the east coast formerly stood at a lower level and the sand dunes when formed were directly on the coast. The coquina rock accumulated in the shallow waters bordering the coast.

#### SOUTH FLORIDA PINELANDS.

The South Florida Pinelands cover a large part of southern Florida. The prevailing timber growth is the long leaf pine, which however, gives place in the southern part of this area to the Cuban pine. This large area presents considerable diversity. The prevailing soils are sandy loams frequently underlaid by clayey limestones or shell marls. The Calossahatchee River which crosses this area from Lake Okeechobee to the Gulf, is bordered by calcareous hammock lands. Extensive areas of hammock and muck lands are found along the Manatee River.

#### SOUTHERN GULF COAST DUNES.

An irregular and more or less interrupted line of dunes occurs along the southern Gulf coast. Some of the best

developed of these dunes are seen on the islands near Caxamhas Pass in the southern part of Lee County. Low quiescent dunes are seen along the coast line of Manatee County south of Sarasota. These sand dunes like those of the east coast are quiescent and support a growth of spruce pine and various shrubs.

#### THE EVERGLADES MUCK LANDS.

The Everglades of Southern Florida include an area of about 4,000 square miles, lying south and east of Lake Okeechobee. Over this area muck deposits of considerable although varying depths rest upon a limestone foundation.

#### THE MIAMI LIMESTONE BELT.

The Miami Limestone Belt extends north and south through Dade County lying between the east border of the Everglades and the Atlantic coast. The underlying formation is an oolitic limestone which is exposed at the surface or covered by a shallow coating of sandy or muck soil. The prevailing type of vegetation is the Cuban pine with a dense undergrowth of saw palmetto.

#### DADE COUNTY PRAIRIE BELT.

The Dade County Prairie Belt is a strip of prairie land bordering the coast and extending south-westward from Cocoanut Grove. The land lies close to sea level and is more or less inundated by salt water during storms and supports a sparse growth of mangrove bushes.

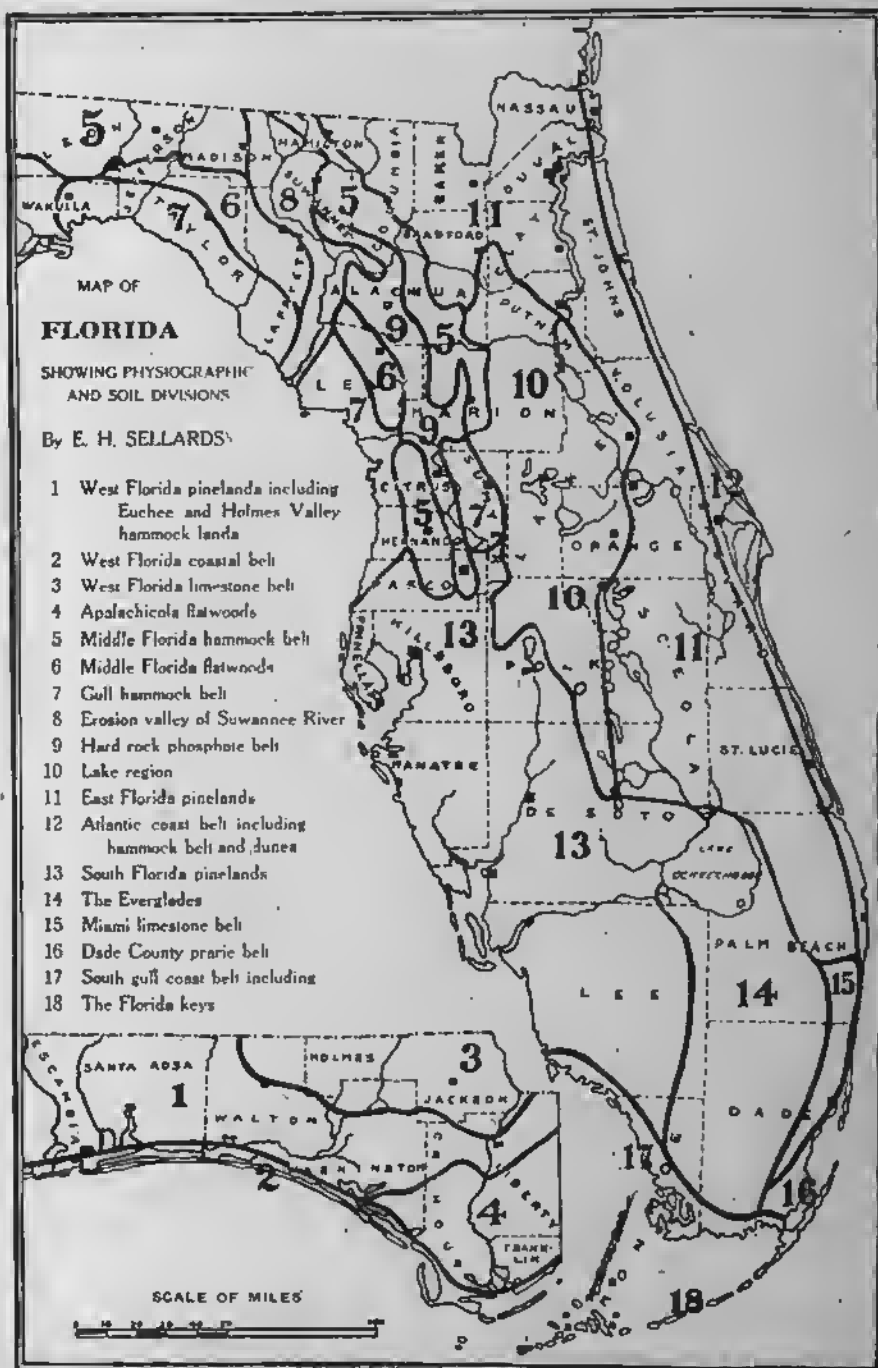
#### MANGROVE SWAMPS.

Mangrove swamps form a characteristic feature of the southern Florida coast. The largest of the mangrove

swamps are those which lie along the Gulf coast extending from Whitewater Bay back of Cape Sahle to Cape Romano, including the Ten Thousand Islands. The mangrove trees of the Shark River Archipelago and the southern portion of the Ten Thousand Islands, as reported by Sanford in the Second Annual Report of the State Geological Survey, reach the unusual size of 60 or more feet in height, and 2 or more feet in diameter at the butt. Elsewhere the trees are as a rule of smaller size being usually under 20 feet in height. Mangrove swamps are found more or less well developed from somewhat north of Miami on the Atlantic coast to Marco on the Gulf coast.

#### THE FLORIDA KEYS.

The Florida Keys include a line of islands extending from Soldiers Key opposite Miami to Key West. The keys may be divided into two groups. The first of these extending from Soldiers Key to and including Knights Key has a coral limestone foundation and supports a dense growth of hardwood and palm trees. Beyond Knights Key the islands are more irregular in shape and rest upon a sub-structure of oolitic limestone. The Cuban pine is a conspicuous feature of the vegetation of this lower group of keys.



## CROP STATISTICS FOR 1911-12

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In discussing the acreage and yields of crops for 1911-12 as appear on the following pages, it will be noted that four counties are not reported for various reasons or excuses made by some, and no reason at all given by others, even though the Boards of County Commissioners were asked for explanations in every case. In one case the omission was in part justifiable under the conditions, sickness of the enumerator; in the other there was no reason for not complying with the law. It was simply neglect of a duty whose importance the county authorities could not appreciate, but for which there can be no reasonable excuse. Consequently, the reader of this report is asked to bear in mind the fact, that as great as the increase is in all the several schedules of these statistics save one, that it would have been much greater if all the counties had reported.

The acreage planted to field crops reported for 1911-12, is 937,264, as compared with 1,103,499 for 1909-10, showing a decrease of 166,235 acres planted to standard field crops. The acreage in vegetable and garden products was 63,241 for 1911-12, as compared with 54,047 for 1909-10, or 9,194 acres increase over 1909-10. The total acreage in cultivation was 1,000,505 acres for 1911-12, as against 1,157,546 acres for 1909-10, or a net loss of 157,041 acres in favor of 1909-10.

### VALUE OF FIELD CROPS.

It is noticeable that in this schedule the increased value of the products is even much greater in proportion to both acreage and yield than in 1909-10 and also that the



yield is greater per acre than in former years. This can readily be accounted for by the fact that within the past two years great improvement has been made in the methods of farm operations, such as better methods of planting and cultivating, better seed by selection, better methods of soil preparation, intensive cultivation and more and better fertilizing. The value of these crops for 1911-12 was 16,051,730, as against \$14,612,840, or an increase of \$1,438,890 in favor of 1911-12.

#### VALUE OF VEGETABLE AND GARDEN PRODUCTS.

In this class of products the effects of better methods of planting cultivating, etc., is shown in a more convincing manner than ever before, as the 9,194 acres increase planted to these crops has alone raised the value of the yield nearly 70 per cent. over 1909-10. The value of these crops for 1911-12 was \$8,556,685, as against \$6,825,912, or an increase of \$1,230,773 in favor of 1911-12.

#### VALUE OF FRUIT PRODUCTS.

Of all the schedules this one shows the greatest gain. The value of the fruit products for 1909-10 was \$5,905,727, while the value of the same products for 1911-12 was \$9,689,774, showing a gain of \$3,784,047 above the value of the crops for 1909-10.

#### VALUE OF LIVE STOCK.

In this schedule a slight loss, which is only an apparent loss, not real is shown, and this loss is confined to the cattle industry, being credited to the influence of the cattle tick. Other live stock increased in number and value and with hogs especially. It speaks volumes for the farmer, when he can supply his own meat and bread for the year and have some to spare for market, enabling

him thereby to enjoy some of the luxuries of life. That is exactly the conditions that has come about in hundreds of homes in the past two years in Florida where such conditions were unknown before, and the indications are that it is just the beginning.

The value of the live stock of the State for 1911-12 is shown as \$23,510,479, as against \$23,967,501 for 1909-10.

#### VALUE OF POULTRY AND PRODUCTS.

In this industry we also find a great improvement, and a much larger increase than usual, which amounts in this case to \$1,113,346. It is well known that a much greater interest in poultry raising has been manifested during the last two years than ever before, and the proof is shown in the remarkable increase of over a million dollars in value. The value of the products of this industry for 1911-12 was \$3,527,286, as against \$2,413,940 for 1909-10. We are pleased to note such an improvement, as the poultry industry, is one of the most important branches of farm economy. If it reached the five million dollar mark it would not supply the demand.

#### VALUE OF DAIRY PRODUCTS.

In this schedule we have sustained an apparent loss. Like some other things, it is strange that it should drag along, unappreciated so long, because it is one of the most important of the branches of farm work, as well as the most profitable in proportion to capital required to direct it. The value of the dairy products for 1909-10 was \$2,851,479, as against \$2,518,241 in 1911-12, showing a balance in favor of 1909-10 of \$233,238.

The statistical tables showing all of this in detail by counties, follow on succeeding pages.

## VALUE OF MISCELLANEOUS PRODUCTS.

The products making up this schedule, while important in themselves separately, do not show much in the aggregate. The value of these products for 1909-10 was \$135,435, as against \$133,713 for 1911-12.

Coming down to the grand total for 1911-12, we find the sum of \$63,487,908, as the value of the products, including live stock, for the State, as shown in this report. as against the sum of \$63,487,908 for 1909-10, showing a magnificent as well as a wonderful increase of \$6,775,174.

## YEAR 1909-10.

*Table No. 8—Total Acreage of Crops.*

Field Crops, acres .....	1,103,499
Vegetables and Garden Products, acres .....	54,047
Total acreage in cultivation .....	1,157,546

*Table No. 9—Total Value of Farm Products.*

Table No. 1.—Field Crops .....	\$14,612,840
Table No. 2.—Vegetable and Garden Products. ....	6,825,912
Table No. 3.—Fruit Products .....	5,905,727
Table No. 4.—Live Stock .....	23,967,501
Table No. 5.—Poultry and Products .....	2,413,940
Table No. 6.—Dairy Products .....	2,851,479
Table No. 7.—Miscellaneous Products .....	135,435
Total .....	\$56,712,734

YEAR 1911-12.

*Table No. 8—Total Acreage of Crops.*

Field Crops, acres .....	937,264
Vegetable and Garden Products, acres.....	63,241
<hr/>	
Total acreage in cultivation .....	1,000,505

*Table No. 9—Total Value of Farm Products.*

Table No. 1—Field Crops .....	\$16,051,736
Table No. 2—Vegetable and Garden Products.	8,056,685
Table No. 3—Fruit Products .....	9,689,774
Table No. 4—Live Stock on hand.....	23,510,479
Table No. 5—Poultry and Products.....	3,527,286
Table No. 6—Dairy Products .....	2,518,241
Table No. 7—Miscellaneous Products .....	133,713
<hr/>	
Total .....	\$63,487,908

TABLE NO. 1—FIELD CROPS, 1911-12.

COUNTIES.	COTTON, UPLAND.		
	ACRES.	BALES.	VALUE.
Alachua			
Baker	15	22	1,500
Bradford			
Brevard			
Calhoun	1,877	677	32,524
Citrus			
Clay			
Columbia	5	3	119
Dade			
DeSoto			
Duval			
Escambia	3,374	1,698	75,311
Franklin			
Gadsden	4,314	1,655	78,092
Hamilton			
Hernando			
Hillsborough			
Holmes	12,481	5,070	248,428
Jackson	41,136	15,158	604,865
Jefferson	20,600	8,809	383,300
Lafayette			
Lake			
Lee			
Leon	16,901	5,063	250,049
Levy	183	52	4,140
Liberty	482	160	7,125
Madison	3,182	934	48,060
Manatee			
Marion	1,125	371	22,260
Monroe			
Nassau			
Orange			
*Osceola			
Palm Beach			
Pasco	12	4	225
Pinellas			
Polk			
Putnam	94	36	1,400
Santa Rosa	8,046	427	201,82
St. Johns			
St. Lucie			
*Sumter			
*Suwannee			
*Taylor			
Volusia			
Wakulla	840	259	11,283
Walton	5,320	2,284	105,962
Washington	3,551	1,331	64,417
Totals	123,588	42,013	2,095,973

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	COTTON, SEA ISLAND		
	ACRES.	BALES.	VALUE.
Alachua .....	24,793	5,624	\$ 473,891
Baker .....	4,232	1,414	107,305
Bradford .....	10,564	4,019	298,733
Brevard .....			
Calhoun .....	335	95	6,801
Citrus .....	5	3	180
Clay .....	245	105	6,693
Columbia .....	18,327	4,220	288,338
Dade .....			
DeSoto .....			
Escambia .....	15	7	735
Escambia .....	3	1	100
Franklin .....			
Gadsden .....	491	150	12,923
Hamilton .....	17,120	4,372	310,258
Hernando .....			
Hillsborough .....			
Holmes .....			
Jackson .....	355	120	7,140
Jefferson .....	1,881	543	49,345
Lafayette .....	5,823	1,277	127,700
Lake .....			
Lee .....			
Leon .....	112	29	2,320
Levy .....	1,241	303	23,874
Liberty .....	4	2	125
Madison .....	18,779	3,693	312,020
Manatee .....			
Marion .....	5,136	1,052	132,140
Monroe .....			
Nassau .....			
Orange .....	40	25	1,935
*Osceola .....			
Palm Beach .....			
Pasco .....	8	3	170
Pinellas .....			
Polk .....			
Putnam .....	1,363	357	22,990
Santa Rosa .....	26	20	1,200
St. Johns .....			
St. Lucie .....	1	1	120
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Wakulla .....			
Walton .....	57	15	954
Walton .....			
Washington .....	39	12	834
Totals .....	117,001	28,071	2,188,830

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	CORN.		
	ACRES.	BUSHELS.	VALUE.
Alachua .....	32,595	358,912	259,961
Baker .....	7,761	93,321	93,281
Bradford .....	23,375	274,746	205,493
Brevard .....	4	140	140
Calhoun .....	8,128	90,159	85,757
Citrus .....	2,437	34,607	34,607
Clay .....	2,597	32,817	32,817
Columbia .....	24,842	374,921	269,208
Dade .....	2	20	20
DeSoto .....	4,872	45,333	45,333
Duval .....	2,921	69,319	73,314
Escambia .....	4,177	65,914	65,609
Franklin .....	66	2,635	2,635
Gadsden .....	23,954	341,320	255,990
Hamilton .....	20,973	199,147	199,147
Hernando .....	2,904	46,740	46,740
Hillsborough .....	6,007	77,014	77,044
Holmes .....	17,902	196,734	160,539
Jackson .....	54,107	589,016	480,262
Jefferson .....	33,365	347,199	173,599
Lafayette .....	14,321	132,675	132,675
Lake .....	3,020	37,886	37,895
Lee .....	124	2,590	2,590
Leon .....	36,690	381,241	360,931
Levy .....	4,599	61,210	59,912
Liberty .....	4,439	50,241	50,178
Madison .....	38,442	379,741	280,230
Manatee .....	1,021	6,245	6,245
Marion .....	10,757	131,170	101,556
Monroe .....			
Nassau .....	2,431	42,485	
Orange .....	3,026	47,195	47,290
*Osceola .....			
Palm Beach .....	4	12	15
Pasco .....	3,235	49,238	48,586
Pinellas .....	62	862	912
Polk .....	2,687	48,535	48,855
Putnam .....	6,947	82,151	81,286
Santa Rosa .....	12,412	182,479	177,328
St. Johns .....	6,124	103,685	193,685
St. Lucie .....	132	2,298	3,562
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	3,071	39,090	31,852
Wakulla .....	9,121	77,031	77,081
Walton .....	12,289	129,519	129,519
Washington .....	12,063	144,093	120,882
Totals .....	460,686	5,453,936	4,155,161

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	OATS.		
	ACRES.	BUSHELS.	VALUE.
Alachua .....	1,400	18,990	\$ 18,270
Baker .....	218	2,755	2,570
Bradford .....	1,733	19,330	14,533
Brevard .....			
Calhoun .....	618	6,602	12,282
Citrus .....	120	3,400	1,922
Clay .....	105	1,410	1,075
Columbia .....	2,081	25,218	15,560
Dade .....			
DeSoto .....	21	265	565
Duval .....	111	2,347	2,669
Escambia .....	220	4,190	3,111
Franklin .....			
Gadsden .....	1,927	22,600	16,950
Hamilton .....	243	2,135	1,180
Hernando .....	133	1,680	1,835
Hillsborough .....	19	375	420
Holmes .....	622	6,166	4,043
Jackson .....	3,620	44,347	26,985
Jefferson .....	928	12,723	8,940
Lafayette .....	68	650	625
Lake .....	102	1,050	938
Lee .....	47	725	650
Leon .....	2,124	11,895	11,346
Levy .....	700	13,620	15,118
Liberty .....	406	4,640	3,081
Madison .....	3,081	44,310	38,161
Manatee .....	5	25	25
Marion .....	807	13,170	9,800
Monroe .....			
Nassau .....			
Orange .....	10	200	155
*Osceola .....			
Palm Beach .....			
Pasco .....	9	290	285
Pinellas .....	5	98	98
Polk .....	2	75	100
Putnam .....	427	2,056	2,696
Santa Rosa .....	504	9,109	6,045
St. Johns .....	1	20	12
St. Lucie .....			
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....			
Wakulla .....	538	5,840	5,800
Walton .....	379	3,317	2,900
Washington .....	63	725	800
Totals .....	23,514	287,708	232,250

\*No Report.



TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	SWEET POTATOES.		
	ACRES.	BUSHEL.	VALUE.
Alachua .....	250	153,306	\$ 152,744
Baker .....	273	44,312	31,823
Bradford .....	1,108	159,850	76,990
Brevard .....	37	3,250	6,606
Calhoun .....	348	30,743	18,703
Citrus .....	332	72,398	72,398
Clay .....	369	40,666	29,789
Columbia .....	1,150	110,155	70,382
Dade .....	19	2,880	2,933
DeSoto .....	824	86,213	86,213
Duval .....	2,787	369,434	484,483
Escambia .....	762	61,611	36,269
Franklin .....	61	12,100	.....
Gadsden .....	1,563	130,830	69,915
Hamilton .....	334	41,155	41,155
Hernando .....	204	41,795	41,795
Hillsborough .....	625	70,253	66,783
Holmes .....	590	54,785	37,534
Jackson .....	957	80,552	63,997
Jefferson .....	1,202	94,213	47,943
Lafayette .....	161	43,890	21,990
Lake .....	415	33,537	33,537
Lee .....	128	34,300	34,300
Leon .....	1,891	189,282	151,280
Levy .....	235	26,550	26,600
Liberty .....	311	25,558	18,489
Madison .....	681	90,046	40,030
Manatee .....	214	24,610	24,610
Marion .....	426	48,750	39,150
Monroe .....	.....	.....	.....
Nassau .....	577	98,466	49,650
Orange .....	579	73,600	72,180
*Osceola .....	.....	.....	.....
Palm Beach .....	40	4,200	4,200
Pasco .....	1,000	78,804	67,767
Pinellas .....	79	5,911	6,536
Polk .....	396	40,359	33,598
Putnam .....	851	81,095	77,712
Santa Rosa .....	809	134,717	74,329
St. Johns .....	576	58,355	43,543
St. Lucie .....	63	7,073	7,189
*Sumter .....	.....	.....	.....
*Suwannee .....	.....	.....	.....
*Taylor .....	.....	.....	.....
Volusia .....	604	77,150	46,290
Wakulla .....	204	24,737	24,391
Walton .....	582	58,061	38,949
Washington .....	130	26,034	17,487
Totals .....	24,747	2,953,581	2,398,257

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	RICE.		
	ACRES.	BUSHELS.	VALUE.
Alachua .....			\$ .....
Baker .....	7	100	100
Bradford .....	4	80	80
Brevard .....			.....
Calhoun .....	32	819	819
Citrus .....	3	170	170
Clay .....			.....
Columbia .....	11	378	405
Dade .....	1	50	50
DeSoto .....	41	438	646
Duval .....			.....
Escambia .....	14	278	266
Franklin .....			.....
Gadsden .....	1	25	25
Hamilton .....	2	15	45
Hernando .....	10	289	497
Hillsborough .....	24	394	465
Holmes .....	6	128	120
Jackson .....	3	30	100
Jefferson .....	1	70	110
Lafayette .....			.....
Lake .....			.....
Lee .....	22	1,528	3,850
Leon .....	2	75	250
Levy .....			.....
Liberty .....	3	65	100
Madison .....			.....
Manatee .....	69	1,197	1,511
Marion .....			.....
Monroe .....			.....
Nassau .....			.....
Orange .....	1	58	60
*Osceola .....			.....
Palm Beach .....			.....
Pasco .....	5	164	330
Pinellas .....	12	415	760
Polk .....	110	820	920
Putnam .....	73	1,768	1,473
Santa Rosa .....	4	106	164
St. Johns .....	45	4,000	8,000
St. Lucie .....	1	25	25
*Sumter .....			.....
*Suwannee .....			.....
*Taylor .....			.....
Volusia .....			.....
Wakulla .....	4	95	280
Walton .....	20	257	364
Washington .....	26	500	624
Totals .....	557	14,737	22,609

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	SUGAR CANE.				
	ACRES.	BELS.	VALUE.	SUGAR.	VALUE.
		SYRUP.	DOLLARS.	(LBS.)	DOLLARS.
Alachua .....	284	1,868	\$ 27,664	.....	\$ .....
Baker .....	89	632	12,930	300	25
Bradford .....	334	3,560	51,222	.....	.....
Brevard .....	2	9	225	.....	.....
Calhoun .....	221	2,460	24,609	.....	.....
Citrus .....	136	1,482	18,182	.....	.....
Clay .....	69	364	5,655	150	7
Columbia .....	421	4,397	48,585	1,471	155
Dade .....	6	15	315	.....	.....
DeSoto .....	180	948	18,408	.....	.....
Duval .....	205	638	9,963	200	15
Escambia .....	155	820	12,723	.....	.....
Franklin .....	50	796	11,144	.....	.....
Gadsden .....	1,109	9,946	90,460	.....	.....
Hamilton .....	171	1,153	18,189	.....	.....
Hernando .....	103	433	11,895	.....	.....
Hillsborough .....	373	1,746	42,118	.....	.....
Holmes .....	263	928	23,280	.....	.....
Jackson .....	864	7,570	75,494	.....	.....
Jefferson .....	556	3,524	37,050	.....	.....
Lafayette .....	67	561	8,866	.....	.....
Lake .....	57	162	3,854	.....	.....
Lee .....	97	975	18,485	.....	.....
Leon .....	564	4,003	44,228	.....	.....
Levy .....	86	522	10,668	.....	.....
Liberty .....	209	2,192	27,644	.....	.....
Madison .....	291	1,910	26,245	.....	.....
Manatee .....	101	485	8,090	.....	.....
Marion .....	172	1,020	15,820	.....	.....
Monroe .....	.....	.....	.....	.....	.....
Nassau .....	166	1,383	15,080	.....	.....
Orange .....	3	14	350	.....	.....
*Osceola .....	.....	.....	.....	.....	.....
Palm Beach .....	10	86	2,580	.....	.....
Pasco .....	165	1,369	25,456	.....	.....
Pinellas .....	33	250	5,844	.....	.....
Polk .....	80	520	5,539	.....	.....
Putnam .....	213	538	13,885	200	8
Santa Rosa .....	453	3,063	50,308	.....	.....
St. Johns .....	241	849	19,850	500	40
St. Lucie .....	33	164	6,142	.....	.....
*Sumter .....	.....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	.....	.....
Volusia .....	69	477	7,145	.....	.....
Wakulla .....	173	1,282	15,058	112	6
Walton .....	248	1,438	21,348	.....	.....
Washington .....	260	1,287	18,995	.....	.....
Totals .....	9,475	67,846	\$ 920,693	2,933	\$ 256

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	FIELD PEAS.		
	ACRES.	BUSHEL.	VALUE.
Alachua .....	43	317	\$ 1,134
Baker .....	9	100	125
Bradford .....	7	105	315
Brevard .....			
Calhoun .....	200	996	2,848
Citrus .....	256	4,080	8,332
Clay .....	91	730	1,625
Columbia .....	535	4,607	8,895
Dade .....	2	10	30
DeSoto .....	135	125	150
Duval .....	478	6,510	10,941
Escambia .....	82	530	1,218
Franklin .....	32	777	1,554
Gadsden .....	23	235	470
Hamilton .....	137	686	846
Hernando .....	79	335	775
Hillsborough .....	102	1,938	3,885
Holmes .....	180	1,452	1,783
Jackson .....	515	6,452	6,447
Jefferson .....	382	5,170	10,010
Lafayette .....	20	75	75
Lake .....	280	828	3,480
Lee .....	121	2,300	8,225
Leon .....	436	2,693	8,140
Levy .....	78	1,609	5,524
Liberty .....	64	628	1,193
Madison .....	82	1,032	2,180
Manatee .....	67	995	1,650
Marion .....	180	2,785	7,180
Monroe .....			
Nassau .....	5	50	100
Orange .....	107	2,421	4,052
*Osceola .....			
Palm Beach .....	1	65	80
Pasco .....	358	3,053	7,128
Pinellas .....	70	802	2,104
Polk .....	129	943	1,655
Putnam .....	482	3,647	6,484
Santa Rosa .....	1,600	11,523	18,139
St. Johns .....			
St. Lucie .....	28	890	2,474
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	323	2,536	5,072
Wakulla .....	109	634	1,251
Walton .....	231	1,324	2,848
Washington .....	40	217	771
Totals .....	8,165	76,885	\$ 149,456

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12--Continued.

COUNTIES.	FIELD PEA HAY.		
	ACRES.	TONS.	VALUE.
Alachua .....	1,454	1,404	\$ 22,144
Baker .....	32	63	890
Bradford .....	94	96	1,960
Brevard .....	2	2	50
Calhoun .....	417	344	6,965
Clats .....	147	330	6,155
Clay .....	56	123	2,100
Columbia .....	180	68	1,700
Dade .....	48	52	940
DeSoto .....	243	392	6,178
Duval .....	320	230	6,313
Escambia .....	297	310	6,115
Franklin .....	20	41	1,013
Gadsden .....	505	381	7,620
Hamilton .....	62	128	1,900
Hernando .....	94	87	1,915
Hillsborough .....	38	46	850
Holmes .....	19	54	490
Jackson .....	344	321	6,370
Jefferson .....	454	503	11,592
Lafayette .....	15	15	300
Lake .....	109	302	2,671
Lee .....	5	5	125
Leon .....	1,764	1,016	21,256
Levy .....	70	70	1,620
Liberty .....	32	44	858
Madison .....	550	416	8,501
Manatee .....	2	1	25
Marion .....	496	678	12,940
Monroe .....			
Nassau .....	7	7	140
Orange .....	151	185	3,665
*Osceola .....			
Palm Beach .....	1	2	80
Pasco .....	189	221	3,719
Pinellas .....	112	67	1,330
Polk .....	45	52	1,025
Putnam .....	510	544	11,748
Santa Rosa .....	319	291	5,933
St. Johns .....	118	130	3,275
St. Lucie .....			
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	69	63	1,260
Wakulla .....	128	261	4,045
Walton .....	104	203	4,888
Washington .....	33	55	1,330
Totals .....	9,754	9,849	\$ 180,894

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	HAY, NATIVE GRASSES.		
	ACRES.	TONS.	VALUE.
Alachua .....	1,540	1,418	\$ 25,232
Baker .....	34	79	1,520
Bradford .....	920	980	19,628
Brevard .....	10	24	440
Calhoun .....	245	99	1,863
Citrus .....	206	290	7,363
Clay .....	122	206	2,375
Columbia .....	108	84	1,585
Dade .....	232	410	9,885
DeSoto .....	363	544	11,255
Duval .....	2,154	2,157	35,151
Escambia .....	960	902	16,426
Franklin .....	.....	.....	.....
Gadsden .....	1,556	1,355	27,100
Hamilton .....	76	130	3,330
Hernando .....	197	270	5,930
Hillsborough .....	1,077	1,312	26,105
Holmes .....	406	534	10,682
Jackson .....	3,565	1,934	28,807
Jefferson .....	1,298	1,197	20,880
Lafayette .....	20	30	600
Lake .....	2,057	19,619	10,600
Lee .....	10	15	300
Leon .....	1,349	1,836	13,495
Levy .....	403	447	8,743
Liberty .....	70	86	1,765
Madison .....	400	396	6,078
Manatee .....	245	281	5,209
Marion .....	748	770	11,755
Monroe .....	.....	.....	.....
Nassau .....	11	10	200
Orange .....	1,887	2,060	41,265
*Osceola .....	.....	.....	.....
Palm Beach .....	114	120	3,600
Pasco .....	895	401	7,400
Pinellas .....	833	715	16,335
Polk .....	132	183	2,110
Putnam .....	773	826	17,867
Santa Rosa .....	753	189	4,990
St. Johns .....	2,569	3,055	67,860
St. Lucie .....	28	54	1,738
*Sumter .....	.....	.....	.....
*Suwannee .....	.....	.....	.....
*Taylor .....	.....	.....	.....
Volusia .....	950	859	17,180
Wakulla .....	42	40	825
Walton .....	501	395	7,868
Washington .....	363	328	4,011
Totals .....	29,732	46,650	\$ 516,351

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	MILLET.		
	ACRES.	TONS.	VALUE.
Alachua .....			\$ .....
Baker .....	67	135	1,670
Bradford .....	68	72	1,238
Brevard .....			.....
Calhoun .....			.....
Clats .....	1	2	60
Clay .....	5	5	100
Columbia .....	15	4	150
Dade .....	129	170	4,600
DeSoto .....	4	16	370
Duval .....	19	36	500
Escambia .....	36	39	750
Franklin .....			.....
Gadsden .....			.....
Hamilton .....	7	28	295
Hernando .....			.....
Hillsborough .....	10	28	450
Holmes .....			.....
Jackson .....	12	16	320
Jefferson .....	31	75	800
Lafayette .....			.....
Lake .....	88	87	870
Lee .....			.....
Leon .....	12	8	200
Levy .....			.....
Liberty .....			.....
Madison .....			.....
Manatee .....			.....
Marion .....			.....
Monroe .....			.....
Nassau .....			.....
Orange .....	51	58	1,190
*Osceola .....			.....
Palm Beach .....			.....
Pasco .....	4	4	80
Pinellas .....	3	1	20
Polk .....	15	26	360
Putnam .....	11	16	340
Santa Rosa .....	29	21	450
St. Johns .....			.....
St. Lucie .....			.....
*Sumter .....			.....
*Suwannee .....			.....
*Taylor .....			.....
Volusia .....	6	11	180
Wakulla .....	16	15	150
Walton .....	36	25	505
Washington .....	16	20	409
Totals .....	691	918	\$ 16,057

\*No Report.

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TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	PEANUTS.		
	ACRES.	BUSHEL.	VALUE.
Alachua .....	7,372	15,097	\$ 138,825
Baker .....	4,086	40,710	41,850
Bradford .....	10,273	104,080	122,049
Brevard .....			
Calhoun .....	2,180	24,385	24,335
Citrus .....	1,230	20,370	30,606
Clay .....	6	60	120
Columbia .....	12,115	156,408	131,508
Dade .....	3	31	42
DeSoto .....	41	130	250
Duval .....	5	123	390
Escambia .....	129	3,510	5,357
Franklin .....			
Gadsden .....	6,782	136,270	136,270
Hamilton .....	5,078	50,421	50,421
Hernando .....	307	9,770	26,300
Hillsborough .....	182	3,960	6,145
Holmes .....	4,837	59,821	44,236
Jackson .....	1,197	235,275	235,275
Jefferson .....	3,021	63,629	63,629
Lafayette .....	2,577	20,110	20,110
Lake .....	94	1,247	1,807
Lee .....	5	155	568
Leon .....	1,475	20,714	20,060
Levy .....	2,884	78,550	149,995
Liberty .....	1,080	20,870	21,878
Madison .....	5,806	177,442	187,436
Manatee .....			
Marion .....	1,536	53,610	53,610
Monroe .....			
Nassau .....			
Orange .....	1	40	20
*Osceola .....			
Palm Beach .....			
Pasco .....	315	3,089	6,543
Pinellas .....	1	14	42
Polk .....	22	472	502
Putnam .....	468	3,338	6,392
Santa Rosa .....	1,275	13,643	17,952
St. Johns .....	2	100	200
St. Lucie .....			
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	81	1,350	2,025
Wakulla .....	1,566	20,186	20,161
Walton .....	1,853	24,075	47,274
Washington .....	1,691	21,670	15,369
Totals .....	96,695	1,534,736	\$ 1,630,275

\*No Report.



TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	TOBACCO, OPEN FIELD CULTURE.		
	ACRES.	POUNDS.	VALUE.
Alachua .....			\$ .....
Baker .....			.....
Bradford .....			.....
Brevard .....			.....
Calhoun .....			.....
Clats .....			.....
Clay .....			.....
Columbia .....			.....
Dade .....			.....
DeSoto .....			.....
Duval .....			.....
Escambia .....			.....
Franklin .....			.....
Gadsden .....	902	741,950	139,960
Hamilton .....			.....
Hernando .....	1	1,000	1,000
Hillsborough .....			.....
Holmes .....			.....
Jackson .....			.....
Jefferson .....	3	1,200	800
Lafayette .....			.....
Lake .....			.....
Lee .....			.....
Leon .....	2	1,600	480
Levy .....			.....
Liberty .....			.....
Madison .....			.....
Manatee .....			.....
Marion .....			.....
Monroe .....			.....
Nassau .....			.....
Orange .....			.....
*Osceola .....			.....
Palm Beach .....			.....
Pasco .....	2	200	40
Pinellas .....			.....
Polk .....			.....
Putnam .....			.....
Santa Rosa .....			.....
St. Johns .....			.....
St. Lucie .....			.....
*Sumter .....			.....
*Suwannee .....			.....
*Taylor .....			.....
Volusia .....			.....
Wakulla .....			.....
Walton .....			.....
Washington .....	13	518	159
Totals .....	923	746,468	\$ 142,439

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	TOBACCO, GROWN UNDER SHADE.		
	ACRES.	POUNDS.	VALUE.
Alachua .....			\$ .....
Baker .....			.....
Bradford .....			.....
Brevard .....			.....
Calhoun .....			.....
Citrus .....			.....
Clay .....			.....
Columbia .....			.....
Dade .....			.....
DeSoto .....			.....
Duval .....			.....
Escambia .....			.....
Franklin .....			.....
Gadsden .....	593	661,440	421,923
Hamilton .....			.....
Hernando .....	5	4,200	4,200
Hillsborough *			.....
Holmes .....			.....
Jackson .....			.....
Jefferson .....			.....
Lafayette .....			.....
Lake .....			.....
Lee .....			.....
Leon .....	3	3,070	817
Levy .....			.....
Liberty .....			.....
Madison .....	38	20,920	16,220
Manatee .....			.....
Marion .....			.....
Monroe .....			.....
Nassau .....			.....
Orange .....			.....
*Osceola .....			.....
Palm Beach .....			.....
Pasco .....	10	2,528	1,008
Pinellas .....			.....
Polk .....			.....
Putnam .....			.....
Santa Rosa .....			.....
St. Johns .....			.....
St. Lucie .....			.....
*Sumter .....			.....
*Suwannee .....			.....
*Taylor .....			.....
Volusia .....			.....
Wakulla .....			.....
Walton .....			.....
Washington .....			.....
Totals .....	649	698,158	\$ 444,168

\*No Report

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	VELVET BEANS.		
	ACRES.	BUSHEL.	VALUE
Alachua .....	460	5,953	9,570
Baker .....	.....	.....	.....
Bradford .....	1,208	11,670	34,290
Brevard .....	.....	.....	.....
Calhoun .....	1,207	10,965	10,745
Citrus .....	464	7,482	21,168
Clay .....	101	500	1,195
Columbia .....	200	440	1,120
Dade .....	.....	.....	.....
DeSoto .....	38	300	300
Duval .....	16	625	1,400
Escambia .....	54	477	1,781
Franklin .....	.....	.....	.....
Gadsden .....	205	2,630	7,890
Hamilton .....	891	8,415	16,565
Hernando .....	493	3,660	17,455
Hillsborough .....	292	3,390	4,955
Holmes .....	4,434	46,781	35,361
Jackson .....	1,621	24,834	12,908
Jefferson .....	175	1,662	3,324
Lafayette .....	923	5,490	5,490
Lake .....	564	7,158	14,218
Lee .....	16	295	550
Leon .....	141	4,230	11,303
Levy .....	261	4,955	10,725
Liberty .....	228	3,570	3,570
Madison .....	309	5,365	22,500
Manatee .....	20	145	220
Marion .....	2,839	54,760	127,090
Mouroe .....	.....	.....	.....
Nassau .....	.....	.....	.....
Orange .....	155	1,660	4,180
*Osceola .....	.....	.....	.....
Palm Beach .....	.....	.....	.....
Pasco .....	432	7,385	14,808
Pinellas .....	3	35	35
Polk .....	100	1,060	1,710
Putnam .....	534	2,836	8,278
Santa Rosa .....	4,259	32,659	126,786
St. Johns .....	5	100	200
St. Lucie .....	20	249	1,194
*Sumter .....	.....	.....	.....
*Suwannee .....	.....	.....	.....
*Taylor .....	.....	.....	.....
Volusia .....	67	385	770
Wakulla .....	517	4,777	9,584
Walton .....	4,366	45,867	45,762
Washington .....	597	6,115	3,795
Totals .....	28,314	320,930	\$ 598,815

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	VELVET BEAN HAY.		
	ACRES.	TONS.	VALUE.
Alachua			\$
Baker			
Bradford	15	20	200
Brevard			
Calhoun			
Citrus	11	110	2,210
Clay	1	1	20
Columbia	5	25	500
Dade	10	20	500
DeSoto	18	62	1,240
Duval	9	14	200
Escambia	830	1,005	17,608
Franklin			
Gadsden			
Hamilton			
Hernando	50	29	580
Hillsborough	14	2	40
Holmes	8	9	180
Jackson	1	1	20
Jefferson			
Lafayette	10	50	1,000
Lake	12	90	560
Lee			
Leon	5	10	250
Levy	55	155	4,878
Liberty			
Madison			
Manatee			
Marion			
Monroe			
Nassau			
Orange			
*Osceola			
Palm Beach			
Pasco	21	19	360
Pinellas	3	2	20
Polk	12	22	210
Putnam	318	322	4,485
Santa Rosa	47	86	1,507
St. Johns			
St. Lucie	24	14	380
*Sumter			
*Suwannee			
*Taylor			
Volusia	291	302	7,240
Wakulla	14	14	200
Walton	18	34	695
Washington	90	48	1,500
Totals	1,001	2,526	\$ 46,673

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	RYE.		
	ACRES.	BUSHELS.	VALUE.
Alachua .....			\$
Baker .....			
Bradford .....			
Brevard .....			
Calhoun .....			
Citrus .....			
Clay .....			
Columbia .....			
Dade .....			
DeSoto .....			
Duval .....			
Escambia .....			
Franklin .....			
Gadsden .....			
Hamilton .....			
Hernando .....			
Hillsborough .....			
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....	30	325	525
Lake .....			
Lee .....			
Leon .....	1	30	40
Levy .....			
Liberty .....			
Madison .....	112	606	1,425
Manatee .....			
Marion .....	113	729	2,180
Monroe .....			
Nassau .....			
Orange .....			
*Osceola .....			
Palm Beach .....			
Pasco .....			
Pinellas .....			
Polk .....			
Putnam .....	1	5	10
Santa Rosa .....			
St. Johns .....			
St. Lucie .....			
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....			
Wakulla .....			
Walton .....			
Washington .....	4	20	40
Totals .....	264	1,727	\$ 4,250

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	CASSAVA.		
	ACRES.	TONS.	VALUE.
Alachua .....			\$
Baker .....			
Bradford .....			
Brevard .....			
Calhoun .....			
Citrus .....			
Clay .....	2	6	30
Columbia .....			
Dade .....			
DeSoto .....	3	8	40
Duval .....			
Escambia .....			
Franklin .....			
Gadsden .....			
Hamilton .....			
Hernando .....			
Hillsborough .....	6	13	288
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	12	46	340
Lee .....			
Leon .....			
Levy .....			
Liberty .....			
Madison .....			
Manatee .....			
Marion .....	224	672	3,360
Monroe .....			
Nassau .....			
Orange .....	1	2	40
*Osceola .....			
Palm Beach .....			
Pasco .....			
Pinellas .....	1	1	6
Polk .....	5	10	136
Putnam .....	19	108	610
Santa Rosa .....			
St. Johns .....	1	4	100
St. Lucie .....			
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	12	53	410
Wakulla .....			
Walton .....			
Washington .....			
Totals .....	290	923	\$ - 5,360

\*No Report.

TABLE NO. 1—FIELD CROPS, 1911-12—Continued.

COUNTIES.	ALFALFA (Lucerna.)		
	ACRES.	TONS.	VALUE.
Alachua .....			\$ .....
Baker .....			.....
Bradford .....			.....
Brevard .....			.....
Calhoun .....			.....
Citrus .....			.....
Clay .....			.....
Columbia .....			.....
Dade .....			.....
DeSoto .....			.....
Duval .....			.....
Escambia .....			.....
Franklin .....			.....
Gadsden .....			.....
Hamilton .....			.....
Hernando .....			.....
Hillsborough .....			.....
Holmes .....			.....
Jackson .....			.....
Jefferson .....			.....
Lafayette .....			.....
Lake .....			.....
Lee .....			.....
Leon .....			.....
Levy .....			.....
Liberty .....			.....
Madison .....			.....
Manatee .....			.....
Marion .....			.....
Monroe .....			.....
Nassau .....			.....
Orange .....	1	5	150
*Osceola .....			.....
Palm Beach .....			.....
Pasco .....			.....
Pinellas .....			.....
Polk .....			.....
Putnam .....	1	2	55
Santa Rosa .....	1	3	60
St. Johns .....	25	100	2,700
St. Lucie .....			.....
*Sumter .....			.....
*Suwannee .....			.....
*Taylor .....			.....
Volusia .....			.....
Wakulla .....			.....
Walton .....			.....
Washington .....			.....
Totals .....	28	110	\$ 2,965

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.

COUNTIES.	ONIONS.		
	ACRES.	CRATES.	VALUE.
Alachua .....	8	905	\$ 1,480
Baker .....			
Bradford .....			
Brevard .....	9	1,096	2,075
Calhoun .....	2	100	150
Citrus .....	6	343	522
Clay .....	2	210	330
Columbia .....	3	131	225
Dade .....	5	772	1,519
DeSoto .....	5	788	978
Duval .....	324	25,404	48,155
Escambia .....	2	113	123
Franklin .....	15	3,000	4,500
Gadsden .....			
Hamilton .....			
Hernando .....	14	2,405	600
Hillsborough .....	22	2,546	3,278
Holmes .....	1	80	199
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	12	1,471	1,761
Lee .....	32	3,280	7,355
Leon .....	1	15	50
Levy .....	1	343	900
Liberty .....			
Madison .....			
Manatee .....			
Marion .....	70	9,950	9,800
Monroe .....			
Nassau .....			
Orange .....	9	1,785	2,110
*Osceola .....			
Palm Beach .....	9	1,982	2,849
Pasco .....	4	77	306
Pinellas .....	4	320	719
Polk .....	8	195	555
Putnam .....	14	631	895
Santa Rosa .....	6	953	1,326
St. Johns .....	5	585	1,170
St. Lucie .....	3	442	834
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	26	5,000	6,945
Wakulla .....	1	18	40
Walton .....			
Washington .....	1	172	305
Totals .....	624	65,162	\$ 102,067

\*No Report.



TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.

COUNTIES.	LETTUCE.		
	ACRES.	CRATES.	VALUE.
Alachua .....	413	83,423	174,497
Baker .....			
Bradford .....			
Brevard .....	6	1,400	1,085
Calhoun .....			
Citrus .....			
Clay .....			
Columbia .....			
Dade .....			
DeSoto .....			
Duval .....	201	48,867	74,159
Escambia .....			
Franklin .....	1	60	60
Gadsden .....			
Hamilton .....			
Hernando .....	3	78	78
Hillsborough .....	14	4,705	8,357
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	45	6,386	6,916
Lee .....	9	2,000	1,800
Leon .....			
Levy .....	1	40	60
Liberty .....			
Madison .....			
Manatee .....	433	106,500	169,930
Marion .....	630	84,380	88,320
Monroe .....			
Nassau .....	1	75	150
Orange .....	786	278,655	283,055
*Osceola .....			
Palm Beach .....	3	472	687
Pasco .....	1	100	100
Pinellas .....	1	80	160
Polk .....	2	110	170
Putnam .....	9	251	342
Santa Rosa .....			
St. Johns .....			
St. Lucie .....	1	209	199
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	37	7,195	7,530
Wakulla .....			
Walton .....			
Washington .....	1	26	52
Totals .....	2,598	625,012	\$ 818,307

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	CELERY.		
	ACRES.	CRATES.	VALUE.
Alachua .....			\$ .....
Baker .....			.....
Bradford .....			.....
Brevard .....	8	726	7,177
Calhoun .....			.....
Citrus .....			.....
Clay .....			.....
Columbia .....			.....
Dade .....	2	700	700
DeSoto .....	1	15	18
Duval .....			.....
Escambia .....			.....
Franklin .....	1	30	30
Gadsden .....			.....
Hamilton .....			.....
Hernando .....			.....
Hillsborough .....	73	35,305	67, 035
Holmes .....			.....
Jackson .....			.....
Jefferson .....			.....
Lafayette .....			.....
Lake .....			.....
Lee .....			.....
Leon .....			.....
Levy .....			.....
Liberty .....			.....
Madison .....			.....
Manatee .....	208	92,000	128,500
Marion .....			.....
Monroe .....			.....
Nassau .....			.....
Orange .....	571	270,320	262,605
*Osceola .....			.....
Palm Beach .....	50	17,358	17,537
Pasco .....			.....
Pinellas .....	1	60	60
Polk .....	2	90	90
Putnam .....	1	20	57
Santa Rosa .....			.....
St. Johns .....			.....
St. Lucie .....			.....
*Sumter .....			.....
*Suwannee .....			.....
*Taylor .....			.....
Volusia .....	19	3,770	4,770
Wakulla .....			.....
Walton .....			.....
Washington .....			.....
Totals .....	582	420,394	\$ 482,579

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	PEPPER.		
	ACRES.	CRATES.	VALUE.
Alachua .....	29	4,860	\$ 2,970
Baker .....	.....	.....	.....
Bradford .....	.....	.....	.....
Brevard .....	3	370	580
Calhoun .....	.....	.....	.....
Citrus .....	.....	.....	.....
Clay .....	.....	.....	.....
Columbia .....	.....	.....	.....
Dade .....	268	66,643	97,396
DeSoto .....	13	650	650
Duval .....	192	41,944	37,155
Escambia .....	.....	.....	.....
Franklin .....	2	140	210
Gadsden .....	.....	.....	.....
Hamilton .....	.....	.....	.....
Hernando .....	16	1,950	2,400
Hillsborough .....	12	4,272	7,831
Holmes .....	.....	.....	.....
Jackson .....	.....	.....	.....
Jefferson .....	.....	.....	.....
Lafayette .....	.....	.....	.....
Lake .....	7	1,006	1,715
Lee .....	83	27,550	30,350
Leon .....	.....	.....	.....
Levy .....	.....	.....	.....
Liberty .....	.....	.....	.....
Madison .....	.....	.....	.....
Manatee .....	70	17,450	19,100
Marion .....	70	5,800	7,740
Monroe .....	.....	.....	.....
Nassau .....	.....	.....	.....
Orange .....	48	9,050	10,255
*Osceola .....	.....	.....	.....
Palm Beach .....	221	67,189	67,858
Pasco .....	6	281	312
Pinellas .....	1	19	40
Polk .....	13	520	600
Putnam .....	.....	.....	.....
Santa Rosa .....	1	100	71
St. Johns .....	.....	.....	.....
St. Lucie .....	2	325	455
*Sumter .....	.....	.....	.....
*Suwannee .....	.....	.....	.....
*Taylor .....	.....	.....	.....
Volusia .....	5	740	975
Wakulla .....	.....	.....	.....
Walton .....	.....	.....	.....
Washington .....	.....	.....	.....
Totals .....	1,062	250,918	\$ 288,663

\*No Report.

TABLE NO. 2--VEGETABLES AND GARDEN PRODUCTS.  
1911-12--Continued.

COUNTIES.	IRISH POTATOES.		
	ACRES.	BUSHEL.	VALUE.
Alachua .....	42	3,926	\$ 4,072
Baker .....	1	110	140
Bradford .....	24	3,180	3,280
Brevard .....	41	4,749	7,871
Calhoun .....	8	392	671
Citrus .....	13	857	1,378
Clay .....	102	11,161	10,515
Columbla .....	13	665	684
Dade .....	919	86,465	160,144
DeSoto .....	62	2,468	3,665
Duval .....	945	70,048	107,505
Escambia .....	24	1,676	2,199
Franklin .....	46	9,300	13,950
Gadsden .....			
Hamilton .....			
Hernando .....	12	1,161	1,491
Hillsborough .....	294	26,192	20,847
Holmes .....	15	2,323	3,450
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	98	8,915	10,606
Lee .....	24	615	4,075
Leon .....	1	80	120
Levy .....	6	446	468
Liberty .....	5	162	201
Madison .....	1	51	57
Manatee .....	80	7,790	8,485
Marion .....			
Monroe .....			
Nassau .....	2	140	140
Orange .....	261	32,595	43,050
*Osceola .....			
Palm Beach .....	76	7,921	12,571
Pasco .....	27	2,140	2,930
Pinellas .....	136	2,850	3,865
Polk .....	22	2,589	2,744
Putnam .....	1,178	110,789	142,906
Santa Rosa .....	18	2,147	3,062
St. Johns .....	5,504	602,561	953,640
St. Lucie .....	20	1,994	3,583
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	607	70,822	89,758
Wakulla .....	6	320	334
Walton .....	7	447	904
Washington .....	3	299	521
Totals .....	10,647	1,080,215	\$ 1,640,882

\*No Report.

TABLE NO. 2--VEGETABLES AND GARDEN PRODUCTS.  
1911-12--Continued.

COUNTIES.	CABBAGE.		
	ACRES.	CRATES.	VALUE.
Alachua .....	566	44,462	\$ 58,032
Baker .....	1	100	100
Bradford .....	1	20	30
Brevard .....	6	873	1,107
Calhoun .....	5	263	425
Citrus .....	12	1,051	1,415
Clay .....	6	613	1,496
Columbia .....	8	366	550
Dade .....	21	3,046	3,366
DeSoto .....	2	51	94
Duval .....	284	17,768	35,152
Escambia .....	34	3,809	3,974
Franklin .....	33	6,625	13,250
Gadsden .....			
Hamilton .....			
Hernando .....	14	910	1,010
Hillsborough .....	86	10,301	13,894
Holmes .....	60	835	2,516
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	427	19,828	39,650
Lee .....	50	3,000	7,045
Leon .....	1	65	135
Levy .....	24	4,594	4,704
Liberty .....	2	35	130
Madison .....			
Manatee .....	112	15,580	18,650
Marion .....	220	19,100	32,500
Monroe .....			
Nassau .....	2	100	100
Orange .....	64	3,330	13,315
*Osceola .....			
Palm Beach .....	33	7,427	11,140
Pasco .....	4	374	504
Pinellas .....	9	893	1,713
Polk .....	89	9,710	10,390
Putnam .....	23	1,881	2,120
Santa Rosa .....	10	853	1,754
St. Johns .....	18	1,840	4,180
St. Lucie .....	4	735	860
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	71	8,075	9,460
Wakulla .....	2	125	250
Walton .....	2	56	175
Washington .....	1	34	84
Totals .....	2,307	193,729	\$ 295,279

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	TOMATOES.		
	ACRES.	CRATES.	VALUE.
Alachua .....	71	9,942	5,785
Baker .....	1	25	50
Bradford .....	10	1,440	2,560
Brevard .....	8	765	1,050
Calhoun .....	1	52	56
Citrus .....	34	3,101	3,238
Clay .....	3	375	762
Columbia .....	2	164	239
Dade .....	8,197	1,214,807	1,511,614
DeSoto .....	31	3,184	2,972
Duval .....	383	19,477	32,424
Escambia .....	7	358	471
Franklin .....	17	3,400	6,800
Gadsden .....			
Hamilton .....			
Hernando .....	51	3,147	3,351
Hillsborough .....	474	54,310	56,757
Holmes .....	2	190	373
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	203	15,293	12,928
Lee .....	237	62,900	67,400
Leon .....			
Levy .....	15	2,146	2,702
Liberty .....	1	34	78
Madison .....			
Manatee .....	1,034	149,410	164,440
Marion .....	1,163	88,000	97,210
Monroe .....			
Nassau .....			
Orange .....	354	39,975	42,915
*Osceola .....			
Palm Beach .....	467	39,988	55,998
Pasco .....	58	4,024	3,869
Pinellas .....	11	745	643
Polk .....	145	7,805	8,085
Putnam .....	51	2,153	2,040
Santa Rosa .....	6	1,745	848
St. Johns .....	1	10	40
St. Lucie .....	83	10,420	13,707
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	89	12,445	10,560
Wakulla .....	1	40	40
Walton .....	1	75	80
Washington .....	1	159	144
Totals .....	13,213	1,752,194	\$ 2,112,829

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	SQUASHES.		
	ACRES.	CRATES.	VALUE.
Alachua .....	56	7,816	\$5,066
Baker .....			
Bradford .....			
Brevard .....	1	235	425
Calhoun .....			
Citrus .....			
Clay .....	1	50	75
Columbia .....			
Dade .....	140	31,659	43,773
DeSoto .....	1	50	50
Duval .....	4	192	350
Escambia .....			
Franklin .....	1	70	70
Gadsden .....			
Hamilton .....			
Hernando .....	23	2,940	3,175
Hillsborough .....	16	1,327	1,835
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	24	3,371	2,887
Lee .....	66	26,200	37,250
Leon .....			
Levy .....			
Liberty .....			
Madison .....			
Manatee .....	13	4,100	5,850
Marion .....	74	3,400	10,700
Monroe .....			
Nassau .....			
Orange .....	24	3,590	5,130
*Osceola .....			
Palm Beach .....	60	5,136	7,953
Pasco .....	9	250	275
Pinellas .....			
Polk .....	15	1,790	1,730
Putnam .....	6	13	15
Santa Rosa .....	1	20	25
St. Johns .....			
St. Lucie .....			
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	6	1,180	1,520
Wakulla .....			
Walton .....			
Washington .....	1	14	28
Totals .....	547	98,403	\$ 133,183

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	EGG PLANTS.		
	ACRES.	CRATES.	VALUE.
Alachua .....	2	162	\$ 118
Baker .....			
Bradford .....			
Brevard .....			
Calhoun .....	1	12	6
Citrus .....	1	70	70
Clay .....	1	200	125
Columbia .....	1	40	40
Dade .....	95	6,180	9,250
DeSoto .....	1	60	60
Duval .....	66	2,766	4,766
Escambia .....	4	225	625
Franklin .....	6	510	510
Gadsden .....			
Hamilton .....			
Hernando .....	8	1,265	1,375
Hillsborough .....	8	599	610
Holmes .....	1	10	15
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	23	2,370	1,620
Lee .....	1	200	1,350
Leon .....			
Levy .....	1	41	79
Liberty .....			
Madison .....			
Manatee .....	9	1,450	1,500
Marion .....	150	18,050	14,450
Monroe .....			
Nassau .....			
Orange .....	10	2,215	1,500
*Osceola .....			
Palm Beach .....	32	2,396	1,266
Pasco .....	2	162	155
Pinellas .....	1	25	25
Polk .....	5	300	300
Putnam .....	6	65	64
Santa Rosa .....	1	25	30
St. Johns .....			
St. Lucie .....	1	50	75
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	1	110	110
Wakulla .....			
Walton .....			
Washington .....			
Totals .....	438	39,558	\$ 39,981

\*No Report.



TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	CUCUMBERS.		
	ACRES.	CRATES.	VALUE.
Alachua .....	475	57,578	\$ 49,350
Baker .....			
Bradford .....	1	50	75
Brevard .....	2	185	370
Calhoun .....			
Citrus .....	4	100	100
Clay .....			
Columbia .....	7	208	395
Dade .....	32	2,268	4,548
DeSoto .....	86	11,028	12,061
Duval .....	4	248	534
Escambia .....	1	134	89
Franklin .....	3	240	240
Gadsden .....			
Hamilton .....			
Hernando .....	1	175	100
Hillsborough .....	71	13,360	13,434
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	175	18,416	12,460
Lee .....	15	1,275	4,040
Leon .....			
Levy .....	457	145,240	146,241
Liberty .....			
Madison .....			
Manatee .....	26	6,125	6,575
Marion .....	130	15,600	15,200
Monroe .....			
Nassau .....			
Orange .....	422	71,085	62,820
*Osceola .....			
Palm Beach .....	55	12,560	8,157
Pasco .....	21	2,029	1,750
Pinellas .....	1	90	360
Polk .....	53	350	400
Putnam .....	5	263	321
Santa Rosa .....	2	20	126
St. Johns .....	3	175	525
St. Lucie .....	2	400	800
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	13	2,965	3,070
Wakulla .....			
Walton .....			
Washington .....	1	123	181
Totals .....	2,081	362,390	\$ 344,423

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	WATERMELONS.		
	ACRES.	CARLOADS.	VALUE.
Alachua .....	1,197	442	\$ 31,147
Baker .....	1	1	50
Bradford .....	35	12	880
Brevard .....	2	1	300
Calhoun .....	32	15	1,386
Citrus .....	153	81	8,638
Clay .....	14	7	1,150
Columbia .....	9	133	9,673
Dade .....	10	5	800
DeSoto .....	211	60	5,833
Duval .....	102	246	9,377
Escambia .....	188	76	4,420
Franklin .....	27	53	1,234
Gadsden .....			
Hamilton .....			
Hernando .....	75	22	3,380
Hillsborough .....	257	169	32,290
Holmes .....	276	87	5,114
Jackson .....	799	293	23,725
Jefferson .....	310	108	4,177
Lafayette .....			
Lake .....	2,460	1,038	92,642
Lee .....	108	85	10,175
Leon .....	53	41	3,500
Levy .....	617	169	42,580
Liberty .....	11	6	1,078
Madison .....	110	37	2,000
Manatee .....	12	13	3,000
Marion .....	7,043	2,224	137,380
Monroe .....			
Nassau .....			
Orange .....	433	178	17,590
*Osceola .....			
Palm Beach .....	24	18	4,060
Pasco .....	201	50	4,007
Pinellas .....	61	28	5,390
Polk .....	140	84	5,120
Putnam .....	227	93	9,017
Santa Rosa .....	103	97	8,870
St. Johns .....	21	768	3,236
St. Lucie .....	6	6	900
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	281	83	12,400
Wakulla .....	36	22	2,317
Walton .....	17	11	941
Washington .....	62	33	1,590
Totals .....	15,724	6,895	\$ 511,417

\*No Report.

TABLE NO. 2--VEGETABLES AND GARDEN PRODUCTS.  
1911-12--Continued.

COUNTIES.	CANTALOUPE.		
	ACRES.	CRATES.	VALUE.
Alachua .....	170	4,251	\$ 4,600
Baker .....			
Bradford .....			
Brevard .....			
Calhoun .....			
Citrus .....			
Clay .....			
Columbia .....	1	60	60
Dade .....			
DeSoto .....	7	176	176
Duval .....	16	685	1,350
Escambia .....	6	211	245
Franklin .....	13	2,062	3,093
Gadsden .....			
Hamilton .....			
Hernando .....	25	100	100
Hillsborough .....	8	675	780
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	32	691	1,252
Lee .....	7	100	700
Leon .....	2	50	50
Levy .....	162	10,975	11,000
Liberty .....			
Madison .....			
Manatee .....			
Marion .....	3,979	260,240	261,040
Mourroe .....			
Nassau .....			
Orange .....	2	100	100
*Osceola .....			
Palm Beach .....	1	33	32
Pasco .....			
Pinellas .....	1	50	50
Polk .....			
Putnam .....	8	70	225
Santa Rosa .....	2	20	145
St. Johns .....			
St. Lucie .....	1	2	24
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....			
Wakulla .....			
Walton .....			
Washington .....			
Totals .....	4,444	280,551	\$ 285,023

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	ENGLISH PEAS.		
	ACRES.	CRATES.	VALUE.
Alachua .....	139	3,562	\$ 8,933
Baker .....			
Bradford .....			
Brevard .....	1	20	140
Calhoun .....			
Citrus .....			
Clay .....	1	10	20
Columbia .....			
Dade .....	4	355	810
DeSoto .....			
Duval .....	5	260	565
Escambia .....			
Franklin .....	2	170	340
Gadsden .....			
Hamilton .....			
Hernando .....	4	60	180
Hillsborough .....	1	7	13
Holmes .....			
Jackson .....	5	100	50
Jefferson .....			
Lafayette .....			
Lake .....	53	6,127	6,135
Lee .....	7	250	880
Leon .....	1	10	20
Levy .....			
Liberty .....			
Madison .....			
Manatee .....			
Marion .....			
Monroe .....			
Nassau .....			
Orange .....	3	380	1,100
*Osceola .....			
Palm Beach .....	3	213	712
Pasco .....	10	51	102
Pinellas .....	1	10	25
Polk .....			
Putnam .....	2	18	40
Santa Rosa .....	15	150	600
St. Johns .....			
St. Lucie .....	2	170	340
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	2	120	160
Wakulla .....			
Walton .....			
Washington .....			
Totals .....	261	12,045	\$ 21,165

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	BEETS.		
	ACRES.	CRATES.	VALUE.
Alachua .....	38	1,724	\$ 3,014
Baker .....			
Bradford .....			
Brevard .....	2	110	605
Calhoun .....			
Citrus .....			
Clay .....	1	50	75
Columbia .....			
Dade .....	2	350	550
DeSoto .....	11	1,000	1,180
Duval .....	173	11,983	19,945
Escambia .....	1	245	275
Franklin .....	4	775	1,550
Gadsden .....			
Hamilton .....			
Hernando .....			
Hillsborough .....	14	1,894	1,923
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	8	134	159
Lee .....	4	580	675
Leon .....			
Levy .....			
Liberty .....			
Madison .....			
Manatee .....			
Marion .....			
Monroe .....			
Nassau .....			
Orange .....	12	2,970	3,480
*Osceola .....			
Palm Beach .....	1	137	326
Pasco .....			
Pinellas .....	1	16	26
Polk .....	1	10	20
Putnam .....			
Santa Rosa .....	1	15	57
St. Johns .....			
St. Lucie .....	3	390	480
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	4	740	870
Wakulla .....			
Walton .....			
Washington .....			
Totals .....	281	23,123	\$ 35,210

\*No Report.

TABLE NO. 2—VEGETABLES AND GARDEN PRODUCTS.  
1911-12—Continued.

COUNTIES.	BEANS.		
	ACRES.	CRATES.	VALUE.
Alachua .....	514	38,008	\$ 37,498
Parker .....	.....	.....	.....
Bradford .....	74	14,077	161,143
Brevard .....	70	688	12,596
Calhoun .....	.....	.....	.....
Citrus .....	2	125	125
Clay .....	4	260	305
Columbia .....	.....	.....	.....
Dade .....	1,162	140,052	208,239
DeSoio .....	416	18,733	19,973
Duval .....	251	31,723	54,005
Escambia .....	3	377	290
Franklin .....	15	3,075	6,150
Gadsden .....	.....	.....	.....
Hamilton .....	.....	.....	.....
Hernando .....	8	530	440
Hillsborough .....	314	33,763	34,076
Holmes .....	1	255	323
Jackson .....	.....	.....	.....
Jefferson .....	.....	.....	.....
Lafayette .....	.....	.....	.....
Lake .....	97	4,204	3,678
Lee .....	59	3,860	10,785
Leon .....	.....	.....	.....
Levy .....	7	1,298	1,401
Liberty .....	.....	.....	.....
Madison .....	.....	.....	.....
Manatee .....	43	6,050	6,475
Marion .....	1,393	96,740	88,570
Monroe .....	.....	.....	.....
Nassau .....	10	1,000	1,500
Orange .....	168	23,140	21,450
*Osceola .....	.....	.....	.....
Palm Beach .....	654	111,010	165,250
Pasco .....	62	2,614	2,551
Pinellas .....	1	15	31
Polk .....	138	3,140	4,060
Putnam .....	21	593	860
Santa Rosa .....	6	310	268
St. Johns .....	.....	.....	.....
St. Lucie .....	786	231,051	98,881
*Sumter .....	.....	.....	.....
*Suwannee .....	.....	.....	.....
*Taylor .....	.....	.....	.....
Volusia .....	16	1,530	2,195
Wakulla .....	.....	.....	.....
Walton .....	1	30	30
Washington .....	1	49	73
Totals .....	6,297	768,500	798,221

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12.

COUNTIES.	ORANGES.			
	BEARING TREES.	NON-BEARING	NO. OF CRATES.	VALUE.
Alachua .....	52,440	1,104	25,244	\$ 33,175
Baker .....	1,360	18,097	6,198	5,412
Bradford .....	569	275	684	1,893
Brevard .....	233,888	109,023	336,878	367,141
Calhoun .....	5,349	2,321	9,004	10,360
Citrus .....	12,894	7,977	32,024	33,511
Clay .....	5,053	355	2,917	5,834
Columbia .....	277	337	286	530
Dade .....	40,067	48,780	46,567	48,187
DeSoto .....	202,001	130,699	400,798	484,852
Duval .....	9,140	2,410	41,222	91,162
Escambia .....	446	1,039	313	732
Franklin .....	1,372	1,716	4,116	8,232
Gadsden .....	.....	.....	.....	.....
Hamilton .....	.....	.....	.....	.....
Hernando .....	11,253	11,016	14,951	17,005
Hillsborough .....	203,104	28,497	532,442	891,563
Holmes .....	8	103	10	36
Jackson .....	120	2,738	200	608
Jefferson .....	.....	.....	.....	.....
Lafayette .....	140	40	400	505
Lake .....	128,063	101,208	452,617	489,047
Lee .....	30,300	84,000	65,700	61,700
Leon .....	110	112	100	175
Levy .....	553	872	1,232	3,968
Liberty .....	.....	.....	.....	.....
Madison .....	10	17	32	64
Manatee .....	107,528	35,076	215,780	271,770
Marion .....	71,170	6,700	149,850	195,450
Monroe .....	6,900	250	3,550	5,325
Nassau .....	91	62	100	150
Orange .....	535,002	85,725	725,305	788,690
*Osceola .....	.....	.....	.....	.....
Palm Beach .....	25,064	439,401	41,510	67,267
Pasco .....	42,277	12,001	75,707	75,975
Pinellas .....	132,034	54,051	213,191	207,363
Polk .....	219,501	87,301	473,232	471,406
Putnam .....	223,856	61,008	418,556	471,952
Santa Rosa .....	1,555	2,153	1,463	3,503
St. Johns .....	20,444	1,657	41,649	83,288
St. Lucie .....	37,235	423,319	48,550	72,712
*Sumter .....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	.....
Volusia .....	414,135	71,570	386,100	383,000
Wakulla .....	96	322	133	361
Walton .....	60	210	53	424
Washington .....	55	1,808	39	78
Totals .....	2,770,526	1,836,016	4,769,312	\$ 5,665,415

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	LEMONS.			
	BEARING TREES.	NON-BEARING	NO. OF CRATES.	VALUE.
Alachua .....	2	.....	1	\$ 2
Baker .....	.....	.....	.....	.....
Bradford .....	.....	.....	.....	.....
Brevard .....	105	102	103	215
Calhoun .....	253	14	512	1,029
Citrus .....	48	55	56	283
Clay .....	.....	.....	.....	.....
Columbia .....	.....	.....	.....	.....
Dade .....	1,483	10,681	2,231	4,280
DeSoto .....	231	600	168	298
Duval .....	3	7	7	50
Escambia .....	.....	.....	.....	.....
Franklin .....	180	151	540	2,100
Gadsden .....	.....	.....	.....	.....
Hamilton .....	.....	.....	.....	.....
Hernando .....	.....	.....	.....	.....
Hillsborough .....	232	150	546	888
Holmes .....	.....	.....	.....	.....
Jackson .....	.....	.....	.....	.....
Jefferson .....	.....	.....	.....	.....
Lafayette .....	.....	.....	.....	.....
Lake .....	561	751	333	463
Lee .....	889	452	2,055	3,020
Leon .....	.....	.....	.....	.....
Levy .....	2	1	5	27
Liberty .....	.....	.....	.....	.....
Madison .....	.....	.....	.....	.....
Manatee .....	33	.....	103	160
Marion .....	.....	.....	.....	.....
Monroe .....	1,845	.....	1,845	2,218
Nassau .....	.....	.....	.....	.....
Orange .....	.....	.....	.....	.....
*Osceola .....	.....	.....	.....	.....
Palm Beach .....	2,167	1,859	1,660	14,000
Pasco .....	81	150	112	241
Pinellas .....	168	311	299	683
Polk .....	65	14,034	147	212
Putnam .....	45	77	54	61
Santa Rosa .....	.....	.....	.....	.....
St. Johns .....	.....	.....	.....	.....
St. Lucie .....	851	4,060	1,032	1,852
*Sumter .....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	.....
Volusia .....	.....	.....	.....	.....
Wakulla .....	2	24	1	3
Walton .....	.....	.....	.....	.....
Washington .....	.....	.....	.....	.....
Totals .....	9,108	34,079	11,810	\$ 32,763

\*No Report.



TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	LIMES.		
	ACRES.	BUSHEL.	VALUE.
Alachua			\$
Baker			
Bradford			
Brevard	34	71	79
Calhoun			
Citrus	6	7	25
Clay			
Columbia	5	3	3
Dade	23,079	16,619	37,905
DeSoto	444	237	343
Duval			
Escambia			
Franklin			
Gadsden			
Hamilton			
Hernando			
Hillsborough	651	2,691	2,707
Holmes			
Jackson			
Jefferson			
Lafayette			
Lake	32	46	101
Lee	1,958	4,713	7,755
Leon			
Levy			
Liberty			
Madison			
Manatee	895	2,050	3,300
Marion			
Monroe	5,800	5,800	5,800
Nassau			
Orange			
*Osceola			
Palm Beach	1,457	2,200	2,243
Pasco	25	42	132
Pinellas	103	174	218
Polk	274	371	511
Putnam			
Santa Rosa			
St. Johns			
St. Lucie	2,808	390	640
*Sumter			
*Suwannee			
*Taylor			
Volusia			
Wakulla	1	3	8
Walton			
Washington			
Totals	37,572	35,417	\$ 61,770

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	GRAPEFRUIT.			
	BEARING TREES.	NON-BEARING	NO. OF CRATES.	VALUE.
Alachua .....	962	500	685	\$ 1,371
Baker .....	61	20,281	850	1,600
Bradford .....				
Brevard .....	40,205	27,965	55,854	139,117
Calhoun .....	112	50	259	516
Citrus .....	647	1,152	2,044	4,070
Clay .....	68	7	63	126
Columbia .....				
Dade .....	162,182	224,776	142,191	346,272
DeSoto .....	32,589	32,692	65,738	101,936
Duval .....	95	33	175	500
Escambia .....	4	17	3	5
Franklin .....	97	98	291	573
Gadsden .....				
Hamilton .....				
Hernando .....	5,795	9,856	9,444	30,840
Hillsborough ....	12,741	6,544	45,038	106,621
Holmes .....				
Jackson .....	1	3	3	10
Jefferson .....				
Lafayette .....				
Lake .....	29,162	18,689	65,292	176,163
Lee .....	126,500	65,650	318,700	319,500
Leon .....				
Levy .....	15	6	38	134
Liberty .....				
Madison .....				
Manatee .....	70,897	76,221	191,417	413,283
Marion .....	18,920		39,100	79,000
Monroe .....	2,900		2,175	2,175
Nassau .....				
Orange .....	60,655	31,145	73,325	162,175
*Osceola .....				
Palm Beach ....	32,980	47,443	55,510	163,860
Pasco .....	5,169	8,015	19,324	17,809
Pinellas .....	68,995	45,236	135,336	271,921
Polk .....	24,101	33,248	58,498	60,150
Putnam .....	28,719	10,508	44,461	86,283
Santa Rosa .....				
St. Johns .....	1,136	2	2,309	4,618
St. Lucie .....	42,372	76,556	51,192	147,945
*Sumter .....				
*Suwannee .....				
*Taylor .....				
Volusia .....	26,220	3,020	25,970	38,920
Wakulla .....	5	5	18	54
Walton .....	1	1	1	1
Washington .....	1	204	4	8
Totals .....	794,4	739,923	1,405,308	\$ 2,684,525

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	SUGAR APPLES.	
	CRATES.	VALUE—DOLLARS.
Alachua .....		\$ .....
Baker .....		.....
Bradford .....		.....
Brevard .....		.....
Calhoun .....		.....
Citrus .....		.....
Clay .....		.....
Columbia .....		.....
Dade .....	623	1,186
DeSoto .....	2	4
Duval .....		.....
Escambia .....		.....
Franklin .....		.....
Gadsden .....		.....
Hamilton .....		.....
Hernando .....		.....
Hillsborough .....		.....
Holmes .....		.....
Jackson .....		.....
Jefferson .....		.....
Lafayette .....		.....
Lake .....		.....
Lee .....	460	1,310
Leon .....		.....
Levy .....		.....
Liberty .....		.....
Madison .....		.....
Manatee .....		.....
Marion .....		.....
Monroe .....	1,400	1,400
Nassau .....		.....
Orange .....		.....
*Osceola .....		.....
Palm Beach .....	198	224
Pasco .....		.....
Pinellas .....		.....
Polk .....		.....
Putnam .....		.....
Santa Rosa .....		.....
St. Johns .....		.....
St. Lucie .....	20	45
*Sumter .....		.....
*Suwannee .....		.....
*Taylor .....		.....
Volusia .....		.....
Wakulla .....		.....
Walton .....		.....
Washington .....		.....
Totals .....	2,703	\$ 4,169

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	AVOCADO PEARS.		
	TREES.	CRATES.	VALUE.
Alachua			\$
Baker			
Bradford			
Brevard	14	14	28
Calhoun			
Citrus			
Clay			
Columbia			
Dade	61,856	14,735	41,311
DeSoto	20	20	25
Duval			
Escambia			
Franklin			
Gadsden			
Hamilton			
Hernando			
Hillsborough	42	32	103
Holmes			
Jackson			
Jefferson			
Lafayette			
Lake	6	5	6
Lee	1,475	2,925	7,050
Leon			
Levy			
Liberty			
Madison			
Manatee	604	5	5
Marion			
Monroe	544	352	545
Nassau			
Orange			
*Osceola			
Palm Beach	1,623	458	2,573
Pasco			
Pinellas	265	753	1,303
Polk	7	6	6
Putnam			
Santa Rosa			
St. Johns			
St. Lucie	652	68	275
*Sumter			
*Suwannee			
*Taylor			
Volusia			
Wakulla			
Walton			
Washington			
Totals	67,108	19,373	\$ 53,730

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	PINEAPPLES.	
	CRATES.	VALUE—DOLLARS.
Alachua .....		\$ .....
Baker .....		.....
Bradford .....		.....
Brevard .....	142	230
Calhoun .....		.....
Citrus .....		.....
Clay .....		.....
Columbia .....		.....
Dade .....	38,256	55,659
DeSoto .....	9,470	16,185
Duval .....		.....
Escambia .....		.....
Franklin .....		.....
Gadsden .....		.....
Hamilton .....		.....
Hernando .....		.....
Hillsborough .....		.....
Holmes .....		.....
Jackson .....		.....
Jefferson .....		.....
Lafayette .....		.....
Lake .....		.....
Lee .....	11,080	16,430
Leon .....		.....
Levy .....		.....
Liberty .....		.....
Madison .....		.....
Manatee .....	75	190
Marion .....		.....
Monroe .....		.....
Nassau .....		.....
Orange .....	750	1,420
*Osceola .....		.....
Palm Beach .....	12,093	24,759
Pasco .....	15	6
Pinellas .....	175	795
Polk .....	20	22
Putnam .....		.....
Santa Rosa .....		.....
St. Johns .....		.....
St. Lucie .....	283,612	267,459
*Sumter .....		.....
*Suwannee .....		.....
*Taylor .....		.....
Volusia .....		.....
Wakulla .....		.....
Walton .....		.....
Washington .....		.....
Totals .....	355,658	\$ 383,155

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	BANANAS.	
	BUNCHES.	VALUE.
Alachua .....		\$ .....
Baker .....		.....
Bradford .....		.....
Brevard .....	614	387
Calhoun .....		.....
Citrus .....	162	324
Clay .....		.....
Columbia .....	230	232
Dade .....	7,124	3,615
DeSoto .....	474	300
Duval .....	10	15
Escambia .....	19	17
Franklin .....	282	141
Gadsden .....		.....
Hamilton .....		.....
Hernando .....	296	291
Hillsborough .....	713	870
Holmes .....		.....
Jackson .....		.....
Jefferson .....		.....
Lafayette .....		.....
Lake .....	10	7
Lee .....	1,095	1,095
Leon .....		.....
Levy .....	5	7
Liberty .....		.....
Madison .....		.....
Manatee .....	225	115
Marion .....		.....
Monroe .....		.....
Nassau .....		.....
Orange .....	640	640
*Osceola .....		.....
Palm Beach .....	6,935	2,169
Pasco .....	281	207
Pinellas .....	176	214
Polk .....	452	1,137
Putnam .....	232	169
Santa Rosa .....		.....
St. Johns .....		.....
St. Lucie .....	7,086	6,681
*Sumter .....		.....
*Suwannee .....		.....
*Taylor .....		.....
Volusia .....		.....
Wakulla .....		.....
Walton .....		.....
Washington .....		.....
Totals .....	27,061	\$ 18,633

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	MANGOES.		
	TREES.	CRATES.	VALUE.
Alachua .....			\$
Baker .....			
Bradford .....			
Brevard .....	90	106	190
Calhoun .....			
Citrus .....			
Clay .....			
Columbia .....			
Dade .....	24,017	12,692	9,865
DeSoto .....	176	49	46
Duval .....			
Escambia .....			
Franklin .....			
Gadsden .....			
Hamilton .....			
Hernando .....			
Hillsborough .....	37	37	83
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	10	4	8
Lee .....	1,463	4,910	5,310
Leon .....			
Levy .....			
Liberty .....			
Madison .....			
Manatee .....	70	300	450
Marion .....			
Monroe .....	850	850	850
Nassau .....			
Orange .....			
*Osceola .....			
Palm Beach .....	4,332	7,035	8,676
Pasco .....			
Pinellas .....	198	502	1,035
Polk .....	9	9	18
Putnam .....			
Santa Rosa .....			
St. Johns .....			
St. Lucie .....	50,843	65	115
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....			
Wakulla .....			
Walton .....			
Washington .....			
Totals .....	82,095	26,569	26,646

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	JAPAN PERSIMMONS.		
	TREES.	CRATES.	VALUE.
Alachua .....	15	5	\$ 20
Baker .....	9,150	100	450
Bradford .....	600	700	1,000
Brevard .....	435	320	718
Calhoun .....			
Citrus .....	49	72	72
Clay .....	49	94	165
Columbia .....			
Dade .....	155	75	135
DeSoto .....	67	87	87
Duval .....	102	78	310
Escambia .....	46	58	102
Franklin .....	35	140	140
Gadsden .....			
Hamilton .....			
Hernando .....	750	105	160
Hillsborough .....	76	49	94
Holmes .....			
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....	114	36	64
Lee .....	147	90	175
Leon .....			
Levy .....			
Liberty .....			
Madison .....			
Manatee .....	19	11	23
Marion .....			
Monroe .....			
Nassau .....			
Orange .....	270	280	350
*Osceola .....			
Palm Beach .....	180	76	222
Pasco .....	508	44	55
Pinellas .....	80	132	182
Polk .....	185	143	177
Putnam .....	199	131	281
Santa Rosa .....			
St. Johns .....	1,142	1,166	1,166
St. Lucie .....	30,079	66	83
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	219	197	291
Wakulla .....			
Walton .....	138	67	108
Washington .....	24	4	23
Totals .....	44,838	4,376	\$ 6,653

\*No Report.



TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	SAPODILLAS	
	CRATES.	VALUE—DOLLARS.
Alachua .....		\$
Baker .....		
Bradford .....		
Brevard .....		
Calhoun .....		
Citrus .....		
Clay .....		
Columbia .....		
Dade .....	92	165
DeSoto .....	11	10
Duval .....		
Escambia .....		
Franklin .....		
Gadsden .....		
Hamilton .....		
Hernando .....		
Hillsborough .....	1	5
Holmes .....		
Jackson .....		
Jefferson .....		
Lafayette .....		
Lake .....		
Lee .....	750	1,595
Leon .....		
Levy .....		
Liberty .....		
Madison .....		
Manatee .....	4	4
Marion .....		
Monroe .....	2,825	2,825
Nassau .....		
Orange .....		
*Osceola .....		
Palm Beach .....	345	574
Pasco .....		
Pinellas .....		
Polk .....		
Putnam .....		
Santa Rosa .....		
St. Johns .....		
St. Lucie .....	23	32
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....		
Walton .....		
Washington .....		
Totals .....	4,051	\$ 5,210

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	GUAVAS.	
	CRATES.	VALUE—DOLLARS.
Alachua .....		\$
Baker .....		
Bradford .....		
Brevard .....	2,341	1,791
Calhoun .....		
Citrus .....	8	11
Clay .....		
Columbia .....		
Dade .....	13,619	7,185
DeSoto .....	1,421	1,462
Duval .....		
Escambia .....		
Franklin .....		
Gadsden .....		
Hamilton .....		
Hernando .....		
Hillsborough .....	5,421	7,660
Holmes .....		
Jackson .....		
Jefferson .....		
Lafayette .....		
Lake .....	487	877
Lee .....	5,945	5,395
Leon .....		
Levy .....	10	20
Liberty .....		
Madison .....		
Manatee .....	2,965	2,965
Marion .....		
Monroe .....	1,300	650
Nassau .....		
Orange .....	305	457
*Osceola .....		
Palm Beach .....	7,875	7,901
Pasco .....	1,574	1,820
Pinellas .....	5,481	3,790
Polk .....	1,557	1,579
Putnam .....		
Santa Rosa .....		
St. Johns .....		
St. Lucie .....	5,287	5,291
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	576	709
Wakulla .....		
Walton .....		
Washington .....		
Totals .....	56,172 3/4	49,281

\*No Report.

TABLE NO. 2—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	COCOANUTS.		
	TREES.	NUTS.	VALUE.
Alachua .....			\$ .....
Baker .....			.....
Bradford .....			.....
Brevard .....			.....
Calhoun .....			.....
Citrus .....			.....
Clay .....			.....
Columbia .....			.....
Dade .....	34,868	109,245	3,008
DeSoto .....	4		.....
Duval .....			.....
Escambia .....			.....
Franklin .....			.....
Gadsden .....			.....
Hamilton .....			.....
Hernando .....			.....
Hillsborough .....			.....
Holmes .....			.....
Jackson .....			.....
Jefferson .....			.....
Lafayette .....			.....
Lake .....			.....
Lee .....	1,025	3,000	75
Leon .....			.....
Levy .....			.....
Liberty .....			.....
Madison .....			.....
Manatee .....			.....
Marion .....			.....
Monroe .....			.....
Nassau .....			.....
Orange .....			.....
*Osceola .....			.....
Palm Beach .....	41,651	114,205	5,248
Pasco .....			.....
Pinellas .....			.....
Polk .....			.....
Putnam .....			.....
Santa Rosa .....			.....
St. Johns .....			.....
St. Lucie .....	271	1,100	110
*Sumter .....			.....
*Suwannee .....			.....
*Taylor .....			.....
Volusia .....			.....
Wakulla .....			.....
Walton .....			.....
Washington .....			.....
Totals .....	77,819	227,550	\$ 8,441

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	PECANS.			
	BEARING TREES.	NON-BEARING.	NO. OF BUSHELS.	VALUE.
Alachua .....	1,522	10,049	3,000	\$ 18,000
Baker .....	250	10,613	272	1,632
Bradford .....	846	844	134	824
Brevard .....	14	353	3	8
Calhoun .....	108	295	89	318
Citrus .....	88	496	91	989
Clay .....	318	6,702	120	759
Columbia .....	427	1,309	468	2,815
Dade .....	58	78		
DeSoto .....	4	124	10	50
Duval .....	63	91	183	1,089
Escambia .....	2,403	5,880	1,257	9,243
Franklin .....	97	265	97	330
Gadsden .....				
Hamilton .....				
Hernando .....	64	7,456	8	190
Hillsborough .....	37	1,767	125	371
Holmes .....	43	2,100	64	384
Jackson .....	294	3,477	568	1,306
Jefferson .....	551	1,191,258	568	3,408
Lafayette .....				
Lake .....	352	390	163	1,046
Lee .....				
Leon .....	1,481	1,151	2,664	10,628
Levy .....	620	2,049	357	5,426
Liberty .....	201	762	236	1,436
Madison .....	100	364	380	754
Manatee .....	32	10	30	75
Marion .....				
Monroe .....				
Nassau .....	74	6,685	17	180
Orange .....	295	1,965	155	900
*Osceola .....				
Palm Beach .....				
Pasco .....	101	940	23	79
Pinellas .....	1,723	615	2,267	9,044
Polk .....	69	21	54	53
Putnam .....	1,718	25,623	291	1,689
Santa Rosa .....	3,596	6,072	1,972	12,242
St. Johns .....	471	372	370	1,110
St. Lucie .....	19	166	6	72
*Sumter .....				
*Suwannee .....				
*Taylor .....				
Volusia .....	1,461	5,060	392	1,176
Wakulla .....	362	1,580	162	934
Walton .....	300	2,012	160	1,280
Washington .....	133	1,348	102	5,036
Totals .....	20,409	1,306,459	16,893	\$ 94,887

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	STRAWBERRIES.		
	Acres.	BUSHELS.	Value.
Alachua .....	9	17,100	1,825
Baker .....			
Bradford .....	1,446	2,776,915	
Brevard .....	1	600	180
Calhoun .....			
Citrus .....	1	373	93
Clay .....	15	38,014	4,829
Columbia .....			
Dade .....	1	2,000	600
DeSoto .....	1	2,000	450
Duval .....	7	5,970	2,443
Escambia .....			
Franklin .....			
Gadsden .....			
Hamilton .....			
Hernando .....	1	600	200
Hillsborough .....	158	464,720	96,032
Holmes .....	1	400	65
Jackson .....			
Jefferson .....			
Lafayette .....			
Lake .....			
Lee .....			
Leon .....			
Levy .....			
Liberty .....			
Madison .....			
Manatee .....			
Marion .....			
Monroe .....			
Nassau .....			
Orange .....	1	400	100
*Osceola .....			
Palm Beach .....			
Pasco .....	9	14,000	2,150
Pinellas .....	7	11,280	2,170
Polk .....	81	118,100	26,070
Putnam .....	5	4,870	697
Santa Rosa .....	1	400	100
St. Johns .....	3	3,000	650
St. Lucie .....			
*Sumter .....			
*Suwannee .....			
*Taylor .....			
Volusia .....	22	51,680	8,735
Wakulla .....			
Walton .....			
Washington .....	15	686	167
Totals .....	1,785	3,513,108	\$ 147,456

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	PEARS.			
	BEARING TREES.	NON-BEARING.	NO. OF BARRELS.	VALUE.
Alachua .....	11,071	1,073	8,236	\$ 4,447
Baker .....	33	5,000	33	54
Bradford .....	40	.....	40	40
Brevard .....	5	22	2	9
Calhoun .....	50	110	40	153
Citrus .....	521	77	893	1,846
Clay .....	2,291	2	1,525	2,046
Columbia .....	970	1,119	819	1,262
Dade .....	.....	.....	.....	.....
DeSoto .....	20	117	20	45
Duval .....	2,711	1,685	2,226	16,991
Escambia .....	6,324	1,000	1,761	3,083
Franklin .....	1,335	280	2,670	4,005
Gadsden .....	.....	.....	.....	.....
Hamilton .....	.....	.....	.....	.....
Hernando .....	175	101	294	840
Hillsborough .....	196	480	107	402
Holmes .....	40	20	30	140
Jackson .....	347	130	472	1,262
Jefferson .....	.....	.....	.....	.....
Lafayette .....	364	11	469	469
Lake .....	771	506	665	7,915
Lee .....	.....	.....	.....	.....
Leon .....	1,414	691	1,979	6,795
Levy .....	659	347	506	1,870
Liberty .....	329	17	270	913
Madison .....	140	208	267	267
Manatee .....	20	.....	0	12
Marion .....	3,268	.....	1,826	7,358
Monroe .....	.....	.....	.....	.....
Nassau .....	64	138	43	115
Orange .....	15	275	3	15
*Osceola .....	.....	.....	.....	.....
Palm Beach .....	.....	.....	.....	.....
Pasco .....	1,141	794	204	575
Pinellas .....	139	56	85	228
Polk .....	66	64	59	103
Putnam .....	4,668	749	1,788	5,877
Santa Rosa .....	1,423	789	864	2,817
St. Johns .....	649	69	883	2,648
St. Lucie .....	.....	.....	.....	.....
*Sumter .....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	.....
Volusia .....	10,074	200	650	1,115
Wakulla .....	1,432	264	971	2,103
Walton .....	278	.....	79	193
Washington .....	91	372	58	145
Totals .....	53,155	16,790	30,993	\$ 78,238

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	PEACHES.			
	BEARING TREES.	NON-BEARING.	BUSHEL.	VALUE.
Alachua .....	2,173	763	2,105	\$ 3,503
Baker .....	157	4,015	197	220
Bradford .....	1,370	.....	970	1,145
Brevard .....	005	1,082	753	1,297
Calhoun .....	731	133	1,009	1,009
Citrus .....	2,756	2,659	6,658	8,202
Clay .....	6,365	2,039	3,057	4,004
Columbia .....	4,010	2,830	2,564	3,193
Dade .....	137	853	22	34
DeSoto .....	2,658	835	400	1,092
Duval .....	2,125	2,901	2,250	11,415
Escambia .....	8,763	4,090	5,449	8,895
Franklin .....	1,398	773	2,790	2,796
Gadsden .....	.....	.....	.....	.....
Hamilton .....	10	5	20	30
Hernando .....	1,538	2,978	2,933	5,060
Hillsborough .....	3,983	8,082	4,416	7,332
Holmes .....	2,257	1,394	3,352	4,317
Jackson .....	2,062	787	4,386	4,586
Jefferson .....	.....	.....	.....	.....
Lafayette .....	839	137	4,561	4,561
Lake .....	7,915	287	1,787	1,873
Lee .....	.....	.....	.....	.....
Leon .....	1,155	520	880	1,162
Levy .....	2,105	401	2,044	4,533
Liberty .....	2,976	661	2,728	2,943
Madison .....	175	73	484	486
Manatee .....	110	150	153	336
Marion .....	3,600	.....	4,400	5,400
Monroe .....	.....	.....	.....	.....
Nassau .....	131	762	435	435
Orange .....	2,085	3,090	1,420	1,710
*Osceola .....	.....	.....	.....	.....
Palm Beach .....	.....	.....	.....	.....
Pasco .....	11,387	4,692	3,617	3,778
Pinellas .....	1,269	1,897	1,505	1,786
Polk .....	1,711	1,804	1,325	1,369
Putnam .....	78,001	25,843	62,391	70,528
Santa Rosa .....	10,904	5,755	7,073	11,306
St. Johns .....	5,146	382	5,191	10,381
St. Lucie .....	22	105	15	34
*Sumter .....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	.....
Volusia .....	53,520	7,735	31,270	30,420
Wakulla .....	2,926	872	1,354	1,424
Walton .....	3,317	324	2,221	2,550
Washington .....	291	1,054	309	431
Totals .....	233,373	92,819	178,560	\$ 225,576

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	PLUMS.			
	BEARING TREES.	NON-BEARING.	BUSHEL.	VALUE.
Alachua .....	20	8	85	16
Baker .....	14	.....	30	40
Bradford .....	20	.....	20	23
Brevard .....	4	46	2	3
Calhoun .....	18	.....	28	34
Citrus .....	378	141	703	879
Clay .....	143	111	115	219
Colufabla .....	2,512	2,515	195.2	2,348
Dade .....	57	12	12	12
DeSoto .....	63	301	22	52
Duval .....	288	475	302	1,605
Escambia .....	1,042	1,358	1,100	923
Franklin .....	1,565	582	3,130	3,130
Gadsden .....	.....	.....	.....	.....
Hamilton .....	.....	.....	.....	.....
Hernando .....	667	656	319	675
Hillsborough .....	2,828	1,233	3,306	4,600
Holmes .....	121	35	268	315
Jackson .....	.....	.....	.....	.....
Jefferson .....	.....	.....	.....	.....
Lafayette .....	.....	.....	.....	.....
Lake .....	1	83	6	6
Lee .....	.....	.....	.....	.....
Leon .....	43	31	57	63
Levy .....	113	55	112	281
Liberty .....	773	176	725	937
Madison .....	42	.....	40	45
Manatee .....	215	60	52	103
Marion .....	.....	.....	.....	.....
Monroe .....	.....	.....	.....	.....
Nassau .....	33	71	40	40
Orange .....	70	.....	200	220
*Osceola .....	.....	.....	.....	.....
Palm Beach .....	.....	.....	.....	.....
Pasco .....	2,286	2,145	1,188	1,263
Pinellas .....	89	209	68	127
Polk .....	281	287	106	136
Putnam .....	4,677	123	1,332	1,915
Santa Rosa .....	1,016	839	868	1,593
St. Johns .....	567	130	489	978
St. Lucie .....	.....	.....	.....	.....
*Sumter .....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	.....
Volusia .....	140	200	130	130
Wakulla .....	261	19	134	199
Walton .....	55	23	53	60
Washington .....	50	283	100	100
Totals .....	21,352	12,216	17,716	\$ 23,072

\*No Report.



TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	GRAPE VINES.			
	GRAPEs.		WINEs.	
	POUNDS.	VALUE.	GALLONS.	VALUE.
Alachua .....	10,557	\$ 2,150	11	\$ 22
Baker .....	8,090	800		
Bradford .....	1,000	50		
Brevard .....	3,703	603		
Calhoun .....	2,275	198	325	373
Citrus .....	26,925	2,770	50	50
Clay .....	104,550	22,750	27	27
Columbia .....	18,675	3,070		
Dade .....	268	19		
DeSoto .....	428	40		
Duval .....	40,918	2,969	1,400	763
Escambia .....	18,430	1,343	460	888
Franklin .....	76,000	3,800		
Gadsden .....				
Hamilton .....	1,500	150		
Hernando .....				
Hillsborough .....	7,794	800		
Holmes .....	45,775	1,831	28	28
Jackson .....	1,260	131		
Jefferson .....				
Lafayette .....				
Lake .....	1,985	246	100	100
Lee .....	2,000	480		
Leon .....	2,261	806	40	20
Levy .....	35,430	1,672	460	130
Liberty .....	93,430	2,621		
Madison .....	4,728	475		
Manatee .....	1,175	185		
Marion .....				
Monroe .....				
Nassau .....	3,625	360		
Orange .....	3,700	185		
*Osceola .....				
Palm Beach .....	1,270	129		
Pasco .....	12,354	1,061	35	54
Pinellas .....	11,112	1,066		
Polk .....	6,130	724		
Ptntnam .....	142,512	3,735	300	200
Santa Rosa .....	29,552	1,985	384	763
St. Johns .....	217,510	10,876	16,200	16,200
St. Lucie .....	1,019	207		
*Sumter .....				
*Suwannee .....				
*Taylor .....				
Volusia .....	51,500	2,575		
Wakulla .....	7,501	717	415	263
Walton .....	37,808			
Washington .....	700	15	50	25
Totals .....	1,054,945	\$ 74,581	20,354	\$ 10,908

\*No Report.

TABLE NO. 3—FRUIT CROPS, 1911-12—Continued.

COUNTIES.	FIGS.			
	TREES, BEARING	BEARING NON-	CRATES, NO. OF	VALUE.
Alachua .....	83	1	196	\$ 257
Baker .....	4	12,000	6	12
Bradford .....				
Brevard .....	28	58	58	108
Calhoun .....	7		32	21
Citrus .....	104	18	496	656
Clay .....	57	11	113	226
Columbia .....	133	130	112	224
Dade .....	52		30	62
DeSoto .....	16	153	17	20
Duval .....	105	487	176	3,092
Escambia .....	2,302	3,396	2,546	3,987
Franklin .....	603	11	1,809	2,713
Gadsden .....				
Hamilton .....				
Hernando .....	38	371	60	190
Hillsborough .....	226	53	214	530
Holmes .....	892	6	2,645	2,727
Jackson .....	60	3	226	228
Jefferson .....				
Lafayette .....				
Lake .....	63		45	85
Lee .....	57		50	136
Leon .....	716	11	1,028	1,144
Levy .....	69		170	372
Liberty .....	229	10	1,361	1,755
Madison .....	257		552	687
Manatee .....				
Marion .....				
Monroe .....				
Nassau .....	103	13	150	150
Orange .....	10	50	22	42
*Osceola .....				
Palm Beach .....				
Pasco .....	31	237	142	163
Pinellas .....	8	32	9	23
Polk .....	64	19	73	113
Putnam .....	107	16	115	303
Santa Rosa .....	919	32	738	1,631
St. Johns .....	641	38	1,006	2,012
St. Lucie .....	8	63	2	4
*Sumter .....				
*Suwannee .....				
*Taylor .....				
Volusia .....	456	150	990	1,003
Wakulla .....	54	75	80	127
Walton .....	350	13	1,203	620
Washington .....	16	210	62	58
Totals .....	9,003	17,073	16,534	\$ 25,585

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12.

COUNTIES.	HORSES. (On hand July 1, 1912)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	3,852	\$ 412,439
Baker .....	471	67,985
Bradford .....	2,004	226,650
Brevard .....	457	67,226
Calhoun .....	443	45,775
Citrus .....	429	49,379
Clay .....	550	63,970
Columbia .....	1,760	193,832
Dade .....	847	141,726
DeSoto .....	1,434	162,160
Duval .....	2,639	479,282
Escambia .....	1,861	314,549
Franklin .....	158	23,790
Gadsden .....	1,376	169,776
Hamilton .....	875	106,690
Hernando .....	734	89,270
Hillsborough .....	3,469	447,235
Holmes .....	499	49,920
Jackson .....	1,806	181,665
Jefferson .....	736	82,482
Lafayette .....	867	146,730
Lake .....	814	97,785
Lee .....	341	27,300
Leon .....	1,345	192,926
Levy .....	583	79,120
Liberty .....	439	51,676
Madison .....	1,076	124,987
Manatee .....	1,389	164,310
Marion .....	1,833	180,900
Monroe .....	.....	.....
Nassau .....	450	63,885
Orange .....	2,169	272,890
*Osceola .....	.....	.....
Palm Beach .....	249	45,062
Pasco .....	860	52,282
Pinellas .....	376	43,296
Polk .....	1,030	246,036
Putnam .....	881	111,772
Santa Rosa .....	1,260	126,217
St. Johns .....	1,493	201,410
St. Lucie .....	346	47,469
*Sumter .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	2,044	192,355
Wakulla .....	458	64,535
Walton .....	669	61,097
Washington .....	1,066	97,400
Totals .....	48,418	\$ 6,009,142

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	COLTS. (On hand July 1, 1912.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	264	\$ 17,365
Baker .....	1	50
Bradford .....	47	3,230
Brevard .....	25	815
Calhoun .....	16	610
Citrus .....	68	770
Clay .....	8	265
Columbia .....	28	1,920
Dade .....	8	700
DeSoto .....	110	7,160
Duval .....	28	3,030
Escambia .....	52	2,985
Franklin .....	6	450
Gadsden .....	20	1,115
Hamilton .....	24	1,540
Hernando .....	53	3,425
Hillsborough .....	63	3,760
Holmes .....	6	495
Jackson .....	143	7,750
Jefferson .....	40	3,095
Lafayette .....	3	450
Lake .....	32	2,015
Lee .....	20	790
Leon .....	67	3,155
Levy .....	93	5,430
Liberty .....	27	1,985
Madison .....	55	2,785
Manatee .....	81	3,640
Marion .....	188	12,890
Monroe .....		
Nassau .....		
Orange .....	71	5,730
*Osceola .....		
Palm Beach .....	3	100
Pasco .....	56	2,970
Pinellas .....	10	1,395
Polk .....	42	2,320
Putnam .....	33	1,525
Santa Rosa .....	86	2,505
St. Johns .....	6	315
St. Lucie .....	9	2,000
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	6	220
Wakulla .....	22	1,010
Walton .....	4	195
Washington .....	28	1,455
Totals .....	1,942	\$ 115,401

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	MULES. (On hand July 1, 1912.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	2,359	\$ 366,471
Baker .....	438	64,415
Bradford .....	992	156,930
Brevard .....	117	24,675
Calhoun .....	487	43,702
Citrus .....	107	17,640
Clay .....	468	68,385
Columbia .....	1,630	200,930
Dade .....	631	125,595
DeSoto .....	500	87,376
Duval .....	869	212,692
Escambia .....	690	116,465
Franklin .....	96	19,200
Gadsden .....	920	139,780
Hamilton .....	1,284	193,110
Hernando .....	331	62,890
Hillsborough .....	819	141,775
Holmes .....	1,278	158,040
Jackson .....	2,712	541,250
Jefferson .....	1,418	184,405
Lafayette .....	510	81,595
Lake .....	537	97,190
Lee .....	290	57,000
Leon .....	892	148,240
Levy .....	479	110,650
Liberty .....	303	56,323
Madison .....	1,794	277,496
Manatee .....	369	63,670
Marion .....	1,573	303,360
Monroe .....	.....	.....
Nassau .....	273	44,795
Orange .....	1,007	203,310
*Osceola .....	.....	.....
Palm Beach .....	218	38,057
Pasco .....	359	37,765
Pinellas .....	205	41,310
Polk .....	496	78,015
Putnam .....	323	50,130
Santa Rosa .....	906	157,155
St. Johns .....	915	205,075
St. Lucie .....	107	22,135
*Sumter .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	594	89,400
Wakulla .....	302	51,235
Walton .....	911	124,788
Washington .....	843	132,081
Totals .....	32,352	\$ 5,396,601

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	MULE COLTS. (On hand July 1, 1912.)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	54	\$ 4,450
Baker .....		
Bradford .....	12	1,025
Brevard .....	3	130
Calhoun .....		
Citrus .....	8	715
Clay .....		
Columbia .....	11	1,475
Dade .....	2	150
DeSoto .....	24	3,800
Duval .....	6	925
Escambia .....	9	725
Franklin .....		
Gadsden .....	2	140
Hamilton .....	9	475
Hernando .....		
Hillsborough .....	26	1,975
Holmes .....	17	1,575
Jackson .....	52	5,125
Jefferson .....	46	5,520
Lafayette .....		
Lake .....	5	525
Lee .....	2	150
Leon .....	3	700
Levy .....	118	23,900
Liberty .....	1	100
Madison .....	16	450
Manatee .....	22	4,100
Marion .....	96	7,820
Monroe .....		
Nassau .....	2	150
Orange .....	7	1,030
*Osceola .....		
Palm Beach .....	1	150
Pasco .....	15	1,470
Pinellas .....	3	250
Polk .....	25	3,030
Putnam .....	10	1,835
Santa Rosa .....	34	3,090
St. Johns .....	1	75
St. Lucie .....	1	50
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	2	100
Wakulla .....	2	100
Walton .....	3	375
Washington .....	9	765
Totals .....	670	\$ 78,920

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	ASSES AND JENNETS. (On band July 1, 1912)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	3	\$ 500
Baker .....	2	50
Bradford .....	11	700
Brevard .....		
Calhoun .....	3	150
Citrus .....	1	200
Clay .....	2	85
Columbia .....	2	806
Dade .....	9	425
DeSoto .....	18	680
Duval .....	3	150
Escambia .....	1	75
Franklin .....		
Gadsden .....	1	50
Hamilton .....	3	150
Hernando .....	6	1,200
Hillsborough .....	7	875
Holmes .....	4	140
Jackson .....	7	1,220
Jefferson .....	1	20
Lafayette .....	10	1,000
Lake .....	2	50
Lee .....		
Leon .....		
Levy .....	3	240
Liberty .....	4	425
Madison .....	4	440
Manatee .....	21	950
Marion .....		
Monroe .....		
Nassau .....	1	75
Orange .....	5	500
*Osceola .....		
Palm Beach .....	1	40
Pasco .....	2	200
Pinellas .....		
Polk .....		
Putnam .....	10	310
Santa Rosa .....	10	2,050
St. Johns .....	76	775
St. Lucie .....	6	150
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	3	210
Wakulla .....	3	175
Walton .....	2	270
Washington .....	1	25
Totals .....	248	\$ 15,361

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	WORK OXEN—NO. YOKE. (On hand July 1, 1912.)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	155	6,310
Baker .....	456	2,600
Bradford .....	124	3,130
Brevard .....	60	3,160
Calhoun .....	403	9,586
Citrus .....		
Clay .....	152	6,790
Columbia .....	41	1,762
Dade .....	6	205
DeSoto .....	932	31,562
Duval .....	353	15,825
Escambia .....	609	18,500
Franklin .....	22	550
Gadsden .....	64	2,665
Hamilton .....	36	1,080
Hernando .....	67	2,410
Hillsborough .....	187	3,407
Holmes .....	226	13,440
Jackson .....	335	5,436
Jefferson .....	360	8,346
Lafayette .....	40	1,600
Lake .....	100	530
Lee .....	77	5,270
Leon .....	416	11,257
Levy .....	43	2,350
Liberty .....	551	15,065
Madison .....	42	1,830
Manatee .....	66	3,885
Marion .....		
Monroe .....		
Nassau .....	547	12,840
Orange .....	41	1,500
*Osceola .....		
Palm Beach .....	52	1,775
Pasco .....	81	2,705
Pinellas .....		
Polk .....	57	1,850
Putnam .....	207	6,260
Santa Rosa .....	1,157	37,475
St. Johns .....	156	11,700
St. Lucie .....	181	7,865
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	10	750
Wakulla .....	78	3,030
Walton .....	270	13,898
Washington .....	551	12,745
Totals .....	9,320	\$ 292,997

\*No Report.



TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	STOCK CATTLE. Native Breeds, all ages. (On hand July 1, 1912.)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	44,173	\$ 560,535
Baker .....	9,702	166,264
Bradford .....	26,538	255,390
Brevard .....	10,677	111,755
Calhoun .....	7,057	38,188
Citrus .....	11,396	115,336
Clay .....	15,163	137,513
Columbia .....	19,763	148,455
Dade .....	78	1,690
DeSoto .....	92,605	440,324
Duval .....	15,134	179,885
Escambia .....	6,785	70,757
Franklin .....	1,427	31,394
Gadsden .....	4,206	40,534
Hamilton .....	11,769	110,887
Hernando .....	12,244	121,999
Hillshorough .....	31,583	332,881
Holmes .....	6,710	61,322
Jackson .....	9,650	67,323
Jefferson .....	5,467	37,826
Lafayette .....	38,889	469,835
Lake .....	6,515	72,575
Lee .....	77,075	581,700
Leon .....	2,589	28,024
Levy .....	21,785	267,180
Liberty .....	6,147	63,833
Madison .....	9,053	85,754
Manatee .....	38,174	332,867
Marion .....	5,155	61,550
Monroe .....	.....	.....
Naasau .....	9,330	89,645
Orange .....	34,945	374,000
*Osceola .....	.....	.....
Palm Beach .....	3,135	16,150
Pasco .....	16,553	212,075
Pinellas .....	2,290	23,388
Folk .....	26,043	203,418
Putnam .....	13,993	147,087
Santa Rosa .....	18,526	207,509
S <sup>t</sup> . Johns .....	28,101	281,000
St. Lucie .....	19,277	211,925
*Sumter .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	28,318	283,180
Wakulla .....	7,074	67,469
Walton .....	8,592	71,131
Washington .....	9,360	58,871
Totals .....	772,076	\$ 7,224,544

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	TUROU GIBBED CATTLE. Including 3-4 grades and up—all ages. (On hand July 1, 1912.)	
	HEMIFORD AND GRADES.	
	NUMBER	VALUE—DOLLARS.
Alachua .....	99	\$ 1,880
Baker .....	6	300
Bradford .....	32	700
Brevard .....		
Calhoun .....		
Citrus .....	8	220
Clay .....	2	100
Columbia .....	9	278
Dade .....	6	500
DeSoto .....	127	3,421
Duval .....	10	200
Escambia .....	3	110
Franklin .....		
Gadsden .....		
Hamilton .....	335	4,075
Hernando .....	150	2,800
Hillsborough .....	1	50
Holmes .....		
Jackson .....	12	340
Jefferson .....	31	296
Lafayette .....		
Lake .....	1	75
Lee .....	30	950
Leon .....	240	4,095
Levy .....	4	310
Liberty .....	69	1,570
Madison .....	10	500
Manatee .....	111	2,497
Marion .....	60	3,000
Monroe .....		
Nassau .....		
Orange .....		
*Osceola .....		
Palm Beach .....	50	4,010
Pasco .....		
Pinellas .....	6	310
Polk .....	38	3,925
Putnam .....		
Santa Rosa .....	165	4,138
St. Johns .....		
St. Lucie .....		
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	54	1,035
Walton .....	1	40
Washington .....	23	630
Totals .....	1,693	\$ 42,745

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	THOROUGHBRED CATTLE. Including 3-4 grades and up—all ages. (On hand July 1, 1912.)	
	SHORTHORN AND GRADES.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	78	\$ 3,080
Baker .....	4	300
Bradford .....		
Brevard .....	4	300
Calhoun .....	1	35
Citrus .....	6	280
Clay .....	2	100
Columbia .....	7	280
Dade .....	2	260
DeSoto .....	6	275
Duval .....	11	190
Escambia .....	17	412
Franklin .....		
Gadsden .....	21	700
Hamilton .....	2	90
Hernando .....	1	75
Hillsborough .....	1	20
Holmes .....		
Jackson .....	36	1,040
Jefferson .....	12	86
Lafayette .....		
Lake .....		
Lee .....		
Leon .....	33	1,090
Levy .....	1	80
Liberty .....	25	500
Madison .....		
Manatee .....	2	50
Marion .....	560	27,500
Monroe .....		
Nassau .....		
Orange .....		
*Osceola .....		
Palm Beach .....		
Pasco .....	1	35
Pinellas .....		
Polk .....		
Putnam .....	43	1,100
Santa Rosa .....	34	1,632
St. Johns .....		
St. Lucie .....		
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	50	1,250
Walton .....	1	50
Washington .....	3	90
Totals .....	964	\$ 40,340

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	THOROUGHbred CATTLE. Including 3-4 grades and up—all ages. (On hand July 1, 1912.)	
	DEVON AND GRADES.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	5	\$ 310
Baker .....		
Bradford .....		
Brevard .....		
Calhoun .....	1	35
Citrus .....	5	125
Clay .....	3	150
Columbia .....	1	100
Dade .....		
DeSoto .....	9	430
Duval .....	20	1,300
Escambia .....	5	155
Franklin .....		
Gadsden .....		
Hamilton .....	1	50
Hernando .....		
Hillsborough .....	6	150
Holmes .....		
Jackson .....	4	120
Jefferson .....	1	50
Lafayette .....		
Lake .....	5	115
Lee .....	35	1,225
Leon .....		
Levy .....		
Liberty .....	5	150
Madison .....		
Manatee .....		
Marion .....		
Monroe .....		
Nassau .....		
Orange .....		
*Osceola .....		
Palm Beach .....		
Pasco .....	2	60
Pinellas .....		
Polk .....	2	50
Putnam .....	31	650
Sanla Rosa .....	77	1,550
St. Johns .....		
St. Lucie .....		
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....		
Walton .....		
Washington .....	1	75
Totals .....	219	\$ 6,860

\*No Report.

TABLE NO. 4--LIVE STOCK, 1911-12--Continued.

COUNTIES.	THOROUGHBRED CATTLE. Including 3-4 grades and up--all ages. (On hand July 1, 1912.)	
	ABERDEEN, ANOUS POLLED AND GRADES.	
	NUMBER.	VALUE--DOLLARS.
Alachua .....	8	\$ 400
Baker .....		
Bradford .....	13	340
Brevard .....		
Calhoun .....		
Citrus .....		
Clay .....	1	75
Columbia .....		
Dade .....	2	200
DeSoto .....		
Duval .....	6	275
Escambia .....	20	545
Franklin .....		
Gadsden .....		
Hamilton .....	2	40
Hernando .....	2	50
Hillsborough .....	5	250
Holmes .....	1	50
Jackson .....		
Jefferson .....		
Lafayette .....		
Lake .....	2	40
Lee .....		
Leon .....		
Levy .....	21	835
Liberty .....	10	390
Madison .....		
Manatee .....	1	75
Marion .....		
Monroe .....		
Nassau .....		
Orange .....		
*Osceola .....		
Palm Beach .....		
Pasco .....	125	1,630
Pinellas .....		
Polk .....		
Putnam .....	50	2,005
Santa Rosa .....	18	990
St. Johns .....		
St. Lucie .....	6	251
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....		
Walton .....		
Washington .....	2	37
Totals .....	297	\$ 8,816

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	THOROUGHBRED CATTLE.	
	Including 3-4 grades and up—all ages.	
	(On hand July 1, 1912.)	
	JERSEY AND GRADES.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	1,563	\$ 34,241
Baker .....	242	6,680
Bradford .....	339	10,095
Brevard .....	84	4,150
Calhoun .....	145	3,460
Citrus .....	262	8,135
Clay .....	168	6,770
Columbia .....	41	2,320
Dade .....	6	900
DeSoto .....	178	7,250
Duval .....	824	48,819
Escambia .....	963	36,092
Franklin .....	57	2,360
Gadsden .....	8	160
Hamilton .....	87	3,070
Hernando .....	172	9,795
Hillsborough .....	1,128	51,625
Holmes .....	79	2,610
Jackson .....	207	7,065
Jefferson .....	66	1,610
Lafayette .....	14	850
Lake .....	154	6,000
Lee .....	216	7,058
Leon .....	1,104	22,382
Levy .....	74	3,625
Liberty .....	292	8,045
Madison .....	263	5,641
Manatee .....	112	3,120
Marion .....	254	13,380
Monroe .....	.....	.....
Nassau .....	80	2,470
Orange .....	105	4,400
*Osceola .....	.....	.....
Palm Beach .....	28	1,800
Pasco .....	223	9,675
Pinellas .....	60	3,015
Polk .....	15	815
Putnam .....	345	19,370
Santa Rosa .....	562	15,273
St. Johns .....	44	2,610
St. Lucie .....	38	1,700
*Sumter .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	.....	.....
Wakulla .....	107	3,725
Walton .....	110	1,972
Washington .....	196	6,085
Totals .....	11,915	\$ 390,278

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	COWS. Kept for milk only. (On hand July 1, 1912.)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	1,617	\$ 77,567
Baker .....	224	6,006
Bradford .....	210	8,760
Brevard .....	122	6,010
Calhoun .....	305	4,397
Citrus .....	631	18,365
Clay .....	99	4,535
Columbia .....	1,378	15,492
Dade .....	395	25,297
DeSoto .....	26	15,811
Duval .....	1,252	68,346
Escambia .....	1,253	48,498
Franklin .....	270	8,100
Gadsden .....	1,722	48,405
Hamilton .....	1,233	15,580
Hernando .....	129	8,665
Hillsborough .....	2,799	139,470
Holmes .....	2,329	42,414
Jackson .....	3,455	40,861
Jefferson .....	1,722	30,580
Lafayette .....	91	3,129
Lake .....	597	26,440
Lee .....	285	12,740
Leon .....	3,991	71,184
Levy .....	426	12,694
Liberty .....	643	18,174
Madison .....	977	7,396
Manatee .....	242	10,960
Marion .....	274	14,820
Monroe .....	213	15,335
Nassau .....	3	125
Orange .....	1,859	102,185
*Osceola .....	.....	.....
Palm Beach .....	192	15,192
Pasco .....	890	26,603
Pinellas .....	321	16,210
Polk .....	1,422	61,968
Putnam .....	851	27,089
Santa Rosa .....	1,419	40,528
St. Johns .....	1,418	57,605
St. Lucie .....	113	6,562
*Sumter .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	.....	.....
Wakulla .....	205	3,505
Walton .....	1,177	21,362
Washington .....	501	10,467
Totals .....	39,621	\$ 1,215,842

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	CATTLE.	
	Movement during period—all ages.	
	Purchased.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	1,862	\$ 20,546
Baker .....	283	4,400
Bradford .....	180	1,886
Brevard .....	34	354
Calhoun .....	50	485
Citrus .....	483	5,788
Clay .....	823	10,014
Columbia .....	186	1,880
Dade .....	2,004	36,080
DeSoto .....	203	2,450
Duval .....	54	1,611
Escambia .....	269	2,983
Franklin .....	1,172	25,784
Gadsden .....	36	527
Hamilton .....	110	1,210
Hernando .....	6	60
Hillsborough .....	259	2,670
Holmes .....	1,209	8,851
Jackson .....	1,020	7,520
Jefferson .....	106	830
Lafayette .....	150	2,100
Lake .....	221	2,535
Lee .....	7,200	86,400
Leon .....	112	1,175
Levy .....	1,070	12,772
Liberty .....	688	7,598
Madison .....	743	6,727
Manatee .....		
Marion .....	5,900	97,000
Monroe .....		
Nassau .....		
Orange .....	5,235	63,100
*Osceola .....		
Palm Beach .....		
Pasco .....	350	4,425
Pinellas .....	89	987
Polk .....	111	1,108
Putnam .....	2,483	20,003
Santa Rosa .....	468	5,825
St. Johns .....	1,215	12,060
St. Lucie .....		
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	128	1,332
Walton .....	196	2,153
Washington .....	144	1,492
Totals .....	36,852	\$ 464,726

\*No Report.



TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	CATTLE.	
	Movement during period—all ages.	
	Sold Living.	
	NUMBER	VALUE—DOLLARS.
Alachua .....	1,933	\$ 30,814
Baker .....	1,275	16,660
Bradford .....	1,384	13,917
Brevard .....	186	3,359
Calhoun .....	371	3,833
Citrus .....	450	5,043
Clay .....	857	13,304
Columbia .....	1,022	9,521
Dade .....	8	185
DeSoto .....	3	48
Duval .....	821	22,550
Escambia .....	344	4,939
Franklin .....	92	2,024
Gadsden .....	44	461
Hamilton .....	791	8,737
Hernando .....	302	4,158
Hillsborough .....	3,405	35,489
Holmes .....	1,406	16,254
Jackson .....	1,639	16,240
Jefferson .....	833	6,977
Lafayette .....	1,145	19,300
Lake .....	980	12,345
Lee .....	20,742	296,020
Leon .....	129	1,686
Levy .....	2,819	43,327
Liberty .....	589	8,025
Madison .....	989	16,869
Manatee .....	141	1,895
Marion .....	25,200	69,000
Monroe .....		
Nassau .....	13	175
Orange .....	4,512	60,410
*Osceola .....		
Palm Beach .....	5	330
Pasco .....	465	6,356
Pinellas .....	140	1,639
Polk .....	67	780
Putnam .....	3,379	41,373
Santa Rosa .....	601	6,596
St. Johns .....	3,148	47,295
St. Lucie .....	122	2,306
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	733	8,337
Walton .....	369	5,420
Washington .....	819	10,917
Totals .....	84,773	\$ 875,424

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	CATTLE.	
	Movement during period—all ages.	
	Slaughtered.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	1,607	\$ 21,846
Baker .....	584	9,512
Bradford .....	103	1,475
Brevard .....	389	7,040
Calhoun .....	80	848
Citrus .....	760	9,778
Clay .....	298	4,568
Columbia .....	217	2,796
Dade .....	1,904	4,620
DeSoto .....	1	15
Duval .....	1,823	12,552
Escambia .....	251	2,795
Franklin .....	1,224	26,928
Gadsden .....		
Hamilton .....	28	381
Hernando .....	544	9,630
Hillsborough .....	1,035	11,655
Holmes .....	386	4,650
Jackson .....	323	4,053
Jefferson .....	457	5,314
Lafayette .....	50	800
Lake .....	538	5,875
Lee .....	1,210	24,150
Leon .....	612	12,240
Levy .....	925	17,196
Liberty .....	357	5,924
Madison .....	460	4,212
Manatee .....	501	7,575
Marion .....	2,300	59,000
Monroe .....		
Nassau .....	58	585
Orange .....	3,930	64,950
*Osceola .....		
Palm Beach .....		
Pasco .....	700	7,751
Pinellas .....	292	4,555
Polk .....	5	50
Putnam .....	540	7,740
Santa Rosa .....	451	5,997
St. Johns .....	1,931	29,670
St. Lucie .....	1,200	24,000
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	1,820	36,400
Wakulla .....	147	2,111
Walton .....	214	1,213
Washington .....	277	3,999
Totals .....	30,535	\$ 466,559

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	CATTLE.	
	Movement during period—all ages.	
	Died of Disease.	
	NUMBER	VALUE—DOLLARS.
Alachua .....	56	\$ 490
Baker .....	1,324	24,035
Bradford .....	573	6,610
Brevard .....	23	156
Calhoun .....	76	642
Citrus .....	121	1,085
Clay .....	104	1,042
Columbia .....	163	1,562
Dade .....		
DeSoto .....		
Duval .....	3	86
Escambia .....	74	1,080
Franklin .....	35	670
Gadsden .....	6	90
Hamilton .....	75	655
Hernando .....	2	50
Hillsborough .....	114	1,305
Holmes .....	354	4,351
Jackson .....	307	3,211
Jefferson .....	128	1,539
Lafayette .....		
Lake .....	152	1,382
Lee .....	940	5,015
Leon .....	46	635
Levy .....	106	1,748
Liberty .....	14	258
Madison .....	187	1,366
Manatee .....	50	570
Marion .....		
Monroe .....		
Nassau .....		
Orange .....	250	2,650
*Osceola .....		
Palm Beach .....		
Pasco .....	197	1,929
Pinellas .....	38	667
Polk .....	90	744
Putnam .....	566	6,078
Santa Rosa .....	300	3,790
St. Johns .....	374	5,575
St. Lucie .....	17	250
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	367	3,630
Walton .....	144	1,305
Washington .....	34	489
Totals .....	7,418	\$ 86,738

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	CATTLE.	
	Movement during period—all ages.	
	Died of Exposure to Weather.	
	NUMBER	VALUE—DOLLARS.
Alachua .....	338	1,535
Baker .....	427	3,622
Bradford .....	513	5,130
Brevard .....		
Calhoun .....	83	594
Citrus .....	24	240
Clay .....	289	2,883
Columbia .....	627	1,077
Dade .....		
DeSoto .....	1	10
Duval .....	76	1,320
Escambia .....	217	3,006
Franklin .....		
Gadsden .....		
Hamilton .....	325	2,700
Hernando .....	43	360
Hillsborough .....	10	150
Holmes .....	30	240
Jackson .....	108	1,108
Jefferson .....	104	765
Lafayette .....		
Lake .....		
Lee .....		
Leon .....	53	401
Levy .....	3,210	50,650
Liberty .....	502	5,175
Madison .....	5	31
Manatee .....		
Marion .....		
Monroe .....		
Nassau .....	36	360
Orange .....	160	1,600
*Osceola .....		
Palm Beach .....	50	2,500
Pasco .....	158	1,892
Pinellas .....	112	1,175
Polk .....	18	180
Putnam .....	550	5,295
Santa Rosa .....	195	2,394
St. Johns .....	97	1,353
St. Lucie .....	26	300
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	410	3,622
Walton .....		
Washington .....	75	645
Totals .....	8,872	102,373

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	HOGS.	
	(All agea on hand uly 1, 1912.)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	36,234	\$ 81,985
Baker .....	10,522	32,917
Bradford .....	27,733	73,784
Brevard .....	5,580	16,022
Calhoun .....	12,908	41,776
Citrus .....	10,498	24,304
Clay .....	10,260	19,669
Columbia .....	65,497	67,940
Dade .....	949	6,654
DeSoto .....	24,191	51,102
Duval .....	17,401	35,311
Escambia .....	9,809	35,731
Franklin .....	2,637	13,185
Gadsden .....	10,123	23,337
Hamilton .....	17,843	34,769
Hernando .....	9,537	44,533
Hillsborough .....	22,369	56,765
Holmes .....	13,144	36,431
Jackson .....	32,425	118,064
Jefferson .....	21,248	54,159
Lafayette .....	25,981	58,663
Lake .....	5,737	13,732
Lee .....	3,750	10,650
Leon .....	23,544	117,384
Levy .....	16,592	37,420
Liberty .....	12,039	30,865
Madison .....	29,524	77,015
Manatee .....	13,704	20,220
Marion .....	4,578	14,111
Monroe .....	.....	.....
Nassau .....	4,390	17,408
Orange .....	8,189	31,570
*Osceola .....	.....	.....
Palm Beach .....	1,138	7,966
Pasco .....	12,683	17,542
Pinellas .....	1,306	6,027
Polk .....	11,029	20,290
Putnam .....	13,563	41,064
Santa Rosa .....	22,998	63,990
St. Johns .....	24,468	196,580
St. Lucie .....	3,784	13,849
*Santer .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	17,096	43,560
Wakulla .....	12,388	25,411
Walton .....	16,843	36,821
Washington .....	14,623	31,779
Totals .....	661,437½	1,858,915

\*No Report

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	Movement during period—all ages.	
	HOGS.	
	Slaughtered.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	17,803	\$ 110,867
Baker .....	4,048	28,357
Bradford .....	12,123	96,404
Brevard .....	690	4,029
Calhoun .....	5,610	49,790
Citrus .....	1,445	14,049
Clay .....	1,660	11,680
Columbia .....	17,566	9,716
Dade .....	42	430
DeSoto .....	611	1,280
Duval .....	2,982	26,804
Escambia .....	3,267	27,225
Franklin .....	2,030	10,150
Gadsden .....	12,739	107,340
Hamilton .....	11,851	101,493
Hernando .....	353	3,053
Hillsborough .....	5,827	38,159
Holmes .....	10,194	86,323
Jackson .....	24,146	288,287
Jefferson .....	10,673	76,459
Lafayette .....	3,495	17,650
Lake .....	1,061	6,844
Lee .....	800	4,450
Leon .....	3,552	17,163
Levy .....	6,111	30,816
Litherty .....	5,290	48,877
Madison .....	26,250	51,633
Manatee .....	79	250
Marion .....	2,594	26,020
Monroe .....		
Nassau .....	1,554	18,915
Orange .....	1,280	10,525
*Osceola .....		
Palm Beach .....	221	1,722
Pasco .....	1,178	8,583
Pinellas .....	366	2,177
Polk .....	157	723
Putnam .....	4,397	34,097
Santa Rosa .....	4,876	40,443
St. Johns .....	6,905	69,145
St. Lucie .....	568	4,433
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	6,694	42,966
Wakulla .....	5,732	40,952
Walton .....	385	3,202
Washington .....	5,336	44,716
Totals .....	234,525	\$ 1,618,015

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	HOGS.	
	Movement during period—all ages.	
	Sold Living.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	1,154	\$ 6,081
Baker .....	880	3,942
Bradford .....	5,255	22,561
Brevard .....	331	1,217
Calhoun .....	233	761
Citrus .....	347	1,232
Clay .....	167	3,057
Columbia .....	1,244	4,878
Dade .....	5	40
DeSoto .....	106	240
Duval .....	946	5,378
Escambia .....	653	2,060
Franklin .....	138	690
Gadsden .....	10	35
Hamilton .....	535	4,346
Hernando .....	20	150
Hillsborough .....	1,943	6,868
Holmes .....	500	1,476
Jackson .....	1,137	5,421
Jefferson .....	2,896	8,330
Lafayette .....	2,325	9,320
Lake .....	389	1,200
Lee .....	1,235	5,520
Leon .....	207	624
Levy .....	1,281	3,720
Liberty .....	906	3,177
Madison .....	2,420	9,998
Manatee .....	25	50
Marion .....		
Monroe .....		
Nassau .....	72	375
Orange .....	1,270	7,630
*Osceola .....		
Palm Beach .....	70	532
Pasco .....	475	1,227
Pineillas .....	169	812
Polk .....	322	790
Putnam .....	1,182	4,157
Santa Rosa .....	1,962	2,781
St. Johns .....	628	6,213
St. Lucie .....	241	1,100
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	737	2,225
Walton .....	182	791
Washington .....	352	1,296
Totals .....	35,010	\$ 142,301

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	HOGS.	
	Movement during period—all ages.	
	Died of Disease.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	4,164	8,930
Baker .....	2,525	8,023
Bradford .....	5,756	14,643
Brevard .....	45	150
Calhoun .....	5,394	8,620
Citrus .....	814	1,775
Clay .....	1,629	2,986
Columbia .....	1,008	1,915
Dade .....		
DeSoto .....		
Duval .....	183	632
Escambia .....	4,812	13,262
Franklin .....	146	730
Gadsden .....	1,610	3,366
Hamilton .....	8,030	15,555
Hernando .....	154	540
Hillsborough .....	263	670
Holmes .....	13,605	32,539
Jackson .....	14,110	40,827
Jefferson .....	3,734	8,971
Lafayette .....	5,155	12,755
Lake .....	305	1,018
Lee .....	272	670
Leon .....	1,442	2,988
Levy .....	3,213	7,462
Liberty .....	2,417	6,355
Madison .....	9,345	18,582
Manatee .....		
Marion .....		
Monroe .....		
Nassau .....	25	200
Orange .....	15	70
*Osceola .....		
Palm Beach .....		
Pasco .....	589	949
Pinellas .....	361	1,660
Polk .....	617	1,490
Putnam .....	2,978	7,394
Santa Rosa .....	9,025	24,921
St. Johns .....	1,127	11,270
St. Lucie .....	398	990
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	5,791	11,080
Walton .....	6,871	14,294
Washington .....	1,705	4,132
Totals .....	120,643	292,424

\*No Report.



TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	SHEEP—SHEEP AND LAMBS. Movement during period—all ages.	
	Purchased.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	5	15
Baker .....		
Bradford .....		
Brevard .....		
Calhoun .....		
Citrus .....		
Clay .....	93	186
Columbia .....		
Dade .....	6	60
DeSoto .....	150	507
Duval .....	10	30
Escambia .....	514	1,075
Franklin .....	132	560
Gadsden .....		
Hamilton .....	3	45
Hernando .....		
Hillsborough .....	60	250
Holmes .....	872	1,719
Jackson .....	93	186
Jefferson .....	65	130
Lafayette .....		
Lake .....		
Lee .....		
Leon .....	2	4
Levy .....	7	16
Liberty .....		
Madison .....		
Manatee .....	250	500
Marion .....	5,000	10,000
Monroe .....		
Nassau .....		
Orange .....		
*Osceola .....		
Palm Beach .....		
Pasco .....	120	150
Pinellas .....		
Polk .....	920	320
Putnam .....		
Santa Rosa .....	1,062	3,197
St. Johns .....	1,568	3,172
St. Lucie .....	55	190
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....		
Walton .....	150	326
Washington .....	75	150
Totals .....	11,212	\$ 23,388

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	SHEEP—SHEEP AND LAMBS. Movement during period—all ages.	
	Sold Living.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	10	30
Baker .....	57	174
Bradford .....		
Brevard .....		
Calhoun .....	6	15
Citrus .....		
Clay .....	8	16
Columbia .....	13	40
Dade .....		
DeSoto .....		
Duval .....		
Escambia .....	331	852
Franklin .....	14	70
Gadsden .....		
Hamilton .....		
Herhando .....		
Hillsborough .....	600	1,200
Holmes .....	15	30
Jackson .....	2	4
Jefferson .....	218	593
Lafayette .....		
Lake .....		
Lee .....		
Leon .....	20	40
Levy .....	200	600
Liberty .....	50	100
Madison .....	2	4
Manatee .....		
Marion .....	7,100	14,600
Monroe .....		
Nassau .....		
Orange .....		
*Osceola .....		
Palm Beach .....		
Pasco .....		
Pinellas .....		
Polk .....		
Putnam .....	100	150
Santa Rosa .....	900	2,700
St. Johns .....		
St. Lucie .....		
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....		
Walton .....	54	159
Washington .....	753	1,506
Totals .....	10,453	\$ 22,783

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	SHEEP—SHEEP AND LAMBS. Movement during period—all ages.	
	Slaughtered.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	20	120
Baker .....	.....	.....
Bradford .....	.....	.....
Brevard .....	.....	.....
Calhoun .....	.....	.....
Citrus .....	21	63
Clay .....	6	12
Columbia .....	10	20
Dade .....	.....	.....
DeSoto .....	10	25
Duval .....	.....	.....
Escambia .....	27	71
Franklin .....	89	445
Gadsden .....	.....	.....
Hamilton .....	.....	.....
Hernando .....	.....	.....
Hillsborough .....	.....	.....
Holmes .....	102	223
Jackson .....	10	20
Jefferson .....	6	14
Lafayette .....	.....	.....
Lake .....	51	130
Lee .....	.....	.....
Leon .....	20	40
Levy .....	35	80
Liberty .....	22	84
Madison .....	.....	.....
Manatee .....	25	75
Marion .....	4,600	11,700
Monroe .....	.....	.....
Nassau .....	.....	.....
Orange .....	100	600
*Osceola .....	.....	.....
Palm Beach .....	.....	.....
Pasco .....	212	262
Pinellas .....	.....	.....
Polk .....	.....	.....
Putnam .....	.....	.....
Santa Rosa .....	65	240
St. Johns .....	.....	.....
St. Lucie .....	.....	.....
*Sumter .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	860	4,300
Wakulla .....	13	19
Walton .....	.....	.....
Washington .....	16	48
Totals .....	6,320	\$ 18,591

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—*Continued.*

COUNTIES.	SHEEP—SHEEP AND LAMBS Movement during period—all ages.	
	Died of Disease.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....		\$ .....
Baker .....	40	80
Bradford .....		.....
Brevard .....		.....
Calhoun .....	8	16
Citrus .....	3	3
Clay .....	25	50
Columbia .....	3	6
Dade .....		.....
DeSoto .....		.....
Duval .....		.....
Escambia .....	83	164
Franklin .....	12	60
Gadsden .....		.....
Hamilton .....	1	3
Hernando .....		.....
Hillsborough .....		.....
Holmes .....	626	1,252
Jackson .....	47	94
Jefferson .....	40	76
Lafayette .....		.....
Lake .....		.....
Lee .....		.....
Leon .....	4	17
Levy .....	20	50
Liberty .....	5	10
Madison .....	6	12
Manatee .....		.....
Marion .....	200	400
Monroe .....		.....
Nassau .....		.....
Orange .....		.....
*Osceola .....		.....
Palm Beach .....		.....
Pasco .....		.....
Pinellas .....		.....
Polk .....		.....
Putnam .....	7	20
Santa Rosa .....	268	742
St. Johns .....		.....
St. Lucie .....		.....
*Sumter .....		.....
*Suwannee .....		.....
*Taylor .....		.....
Volusia .....		.....
Wakulla .....	3	3
Walton .....	270	650
Washington .....	275	550
Totals .....	1,946	\$ 4,258

\*No Report

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	SHEEP—SHEEP AND LAMBS. Movement during period—all ages.	
	Killed by Dogs.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....		\$ .....
Baker .....	25	50
Bradford .....		.....
Brevard .....		.....
Calhoun .....	322	645
Citrus .....	13	19
Clay .....	33	66
Columbia .....	2	4
Dade .....		.....
DeSoto .....	12	18
Duval .....	50	150
Escambia .....	298	600
Franklin .....		.....
Gadsden .....		.....
Hamilton .....		.....
Hernando .....		.....
Hillsborough .....		.....
Holmes .....	1,553	3,106
Jackson .....	115	224
Jefferson .....	4	2
Lafayette .....		.....
Lake .....		.....
Lee .....		.....
Leon .....	16	20
Levy .....	336	662
Liberty .....	485	970
Madison .....	6	12
Manatee .....	30	60
Marion .....	700	1,400
Monroe .....		.....
Nassau .....		.....
Orange .....		.....
*Osceola .....		.....
Palm Beach .....		.....
Pasco .....	227	250
Pinellas .....		.....
Polk .....	110	110
Putnam .....		.....
Santa Rosa .....	1,718	5,160
St. Johns .....		.....
St. Lucie .....		.....
*Sumter .....		.....
*Suwannee .....		.....
*Taylor .....		.....
Volusia .....		.....
Wakulla .....	241	265
Walton .....	230	535
Washington .....	380	760
Totals .....	6,906	\$ 15,088

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	SHEEP—SHEEP AND LAMBS. Movement during period—all ages.	
	Died of Exposure to Weather.	
	NUMBER.	VALUE—DOLLARS.
Alachua .....		
Baker .....	133	\$ 660
Bradford .....		
Brevard .....		
Calhoun .....	400	800
Citrus .....		
Clay .....	100	200
Columbia .....	15	30
Dade .....		
DeSoto .....		
Duval .....		
Escambia .....	303	609
Franklin .....		
Gadsden .....		
Hamilton .....	4	4
Hernando .....		
Hillsborough .....		
Holmes .....	18	36
Jackson .....	10	20
Jefferson .....		
Lafayette .....		
Lake .....		
Lee .....		
Leon .....		
Levy .....	15	30
Liberty .....	77	134
Madison .....		
Manatee .....		
Marion .....		
Monroe .....		
Nassau .....		
Orange .....		
*Osceola .....		
Palm Beach .....		
Pasco .....		
Pinellas .....		
Polk .....	25	25
Putnam .....		
Santa Rosa .....	725	2,215
St. Johns .....		
St. Lucie .....		
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....		
Wakulla .....	40	40
Walton .....	3	9
Washington .....	20	40
Totals .....	1,888	\$ 4,852

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	SHEEP.	
	(All ages on hand July 1, 1912.)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	1,764	\$ 4,675
Baker .....	415	850
Bradford .....		
Brevard .....		
Calhoun .....	3,073	5,951
Citrus .....	341	577
Clay .....	972	1,944
Columbia .....	195	350
Dade .....		
DeSoto .....	640	1,760
Duval .....	500	2,000
Escambia .....	6,771	13,816
Franklin .....	56	280
Gadsden .....	120	240
Hamilton .....	318	495
Hernando .....	1,219	2,450
Hillsborough .....	2,602	5,555
Holmes .....	8,642	17,286
Jackson .....	1,577	3,098
Jefferson .....	212	367
Lafayette .....		
Lake .....		
Lee .....		
Leon .....	279	669
Levy .....	440	832
Liberty .....	2,194	4,424
Madison .....	121	242
Manatee .....	2,405	4,460
Marion .....	12,300	24,600
Monroe .....		
Nassau .....	851	2,455
Orange .....	1,680	4,000
*Osceola .....		
Palm Beach .....		
Pasco .....	773	1,514
Pinellas .....		
Polk .....	3,100	6,200
Putnam .....	9	22
Santa Rosa .....	23,923	71,401
St. Johns .....	4,105	16,410
St. Lucie .....	55	190
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	12,430	37,290
Wakulla .....	576	697
Walton .....	12,106	28,714
Washington .....	7,736	15,885
Totals .....	114,501	\$ 287,699

\*No Report.

TABLE NO. 4—LIVE STOCK, 1911-12—Continued.

COUNTIES.	GOATS.	
	(All ages on hand July 1, 1912.)	
	NUMBER.	VALUE—DOLLARS.
Alachua .....	2,569	2,597
Baker .....	724	579
Bradford .....	2,337	1,166
Brevard .....	7	17
Calhoun .....	1,346	670
Citrus .....	1,264	1,340
Clay .....	610	610
Columbia .....	858	858
Dade .....	294	358
DeSoto .....	1,082	1,455
Duval .....	1,666	4,564
Escambia .....	3,273	1,725
Franklin .....	559	1,118
Gadsden .....	168	125
Hamilton .....	469	265
Hernando .....	1,095	1,442
Hillsborough .....	3,012	3,401
Holmes .....	887	668
Jackson .....	3,004	1,485
Jefferson .....	985	862
Lafayette .....	1,006	525
Lake .....	50	140
Lee .....	.....	.....
Leon .....	1,110	1,004
Levy .....	521	383
Liberty .....	449	262
Manatee .....	554	277
Madison .....	437	840
Marion .....	3,800	3,800
Monroe .....	.....	.....
Nassau .....	304	630
Orange .....	62	160
*Osceola .....	.....	.....
Palm Beach .....	.....	.....
Pasco .....	874	1,958
Pinellas .....	5	12
Polk .....	527	1,020
Putnam .....	686	730
Santa Rosa .....	3,124	1,812
St. Johns .....	651	1,027
St. Lucie .....	5	15
*Sumter .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	584	1,168
Wakulla .....	653	653
Walton .....	1,227	1,038
Washington .....	1,160	595
Totals .....	43,998	\$ 43,854

\*No Report.



TABLE NO. 5—POULTRY AND PRODUCTS, 1911-12.

COUNTIES.	POULTRY—ALL AGES.			
	Common Barnyard.		All Others.	
	NUMBER.	VALUE.	NUMBER.	VALUE.
Alachua .....	210,392	\$ 37,789	1,681	\$ 1,701
Baker .....	22,218	11,151	603	373
Bradford .....	79,410	25,829	1,336	1,168
Brevard .....	28,292	16,949	2,600	2,682
Calhoun .....	28,236	9,129	162	118
Citrus .....	23,406	11,973	624	817
Clay .....	40,469	21,610	1,106	1,303
Columbia .....	98,441	31,209	490	188
Dade .....	59,170	42,251	3,013	1,736
DeSoto .....	45,762	23,699	6,888	4,420
Duval .....	165,184	119,405	41,637	45,351
Escambia .....	103,852	47,752	10,123	10,317
Franklin .....	34,905	20,943	1,193	895
Gadsden .....	156,620	39,165	.....	.....
Hamilton .....	77,485	25,280	918	898
Hernando .....	21,532	10,923	3,561	4,572
Hillsborough .....	234,511	197,654	9,186	8,315
Holmes .....	54,636	17,220	.....	.....
Jackson .....	93,136	23,700	8,901	3,334
Jefferson .....	45,085	12,044	185	33
Lafayette .....	10,715	2,950	.....	.....
Lake .....	36,221	14,321	1,182	865
Lee .....	19,199	10,376	1,270	2,490
Leon .....	25,872	7,999	29,612	9,295
Levy .....	24,070	12,035	722	879
Liberty .....	28,426	13,941	537	513
Madison .....	34,532	17,119	927	674
Manatee .....	23,375	14,028	304	240
Marion .....	16,589	7,207	2,768	2,126
Monroe .....	.....	.....	.....	.....
Nassau .....	14,393	7,636	.....	.....
Orange .....	112,530	64,805	7,925	10,280
*Osceola .....	.....	.....	.....	.....
Palm Beach .....	34,380	18,716	1,937	1,662
Pasco .....	51,056	31,012	8,632	8,629
Pinellas .....	29,810	17,983	1,876	2,812
Polk .....	106,590	52,239	144	92
Putnam .....	69,822	31,352	6,502	5,105
Santa Rosa .....	68,149	36,612	242	92
St. Johns .....	75,321	37,661	905	370
St. Lucie .....	22,762	18,846	.....	.....
*Seminole .....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	.....
Volusia .....	87,230	34,443	4,000	4,225
Wakulla .....	22,128	5,040	499	284
Walton .....	44,137	13,974	420	392
Washington .....	44,590	13,844	189	181
Totals .....	2,629,642	\$ 1,229,802	164,390	\$ 140,327

\*No Report.

TABLE NO. 5—POULTRY AND PRODUCTS, 1911-12—Continued.

COUNTIES.	EGGS—SOLD AND USED.	
	Dozens.	Value.
Alachua .....	276,149	\$ 56,903
Baker .....	129,850	32,958
Bradford .....	285,852	50,583
Brevard .....	96,891	31,706
Calhoun .....	39,121	6,338
Citrus .....	99,339	23,966
Clay .....	99,095	22,826
Columbia .....	322,022	67,813
Dade .....	161,122	63,217
DeSoto .....	1,646	350
Duval .....	707,695	247,324
Escambia .....	387,545	91,062
Franklin .....	2,340	468
Gadsden .....	98,350	19,670
Hamilton .....	153,488	33,875
Hernando .....	20,634	7,537
Hillsborough .....	1,511,768	424,497
Holmes .....	89,481	17,951
Jackson .....	305,854	47,046
Jefferson .....	60,515	9,792
Lafayette .....	17,780	3,129
Lake .....	82,512	24,043
Lee .....	110,300	35,300
Leon .....	83,914	19,214
Levy .....	79,772	16,115
Liberty .....	104,697	23,405
Madison .....	152,288	33,503
Manatee .....	61,320	18,127
Marion .....	89,532	17,900
Monroe .....		
Nassau .....	35,409	19,605
Orange .....	578,130	160,709
*Osceola .....		
Palm Beach .....	109,970	97,286
Pasco .....	153,023	32,799
Pinellas .....	45,871	11,249
Polk .....	27,335	16,925
Putnam .....	183,733	42,953
Santa Rosa .....	241,793	61,380
St. Johns .....	451,926	112,932
St. Lucie .....	115,274	36,072
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	354,430	70,886
Wakulla .....	47,281	9,167
Walton .....	111,014	22,831
Washington .....	84,210	15,645
Totals .....	8,175,261	\$ 2,157,157

\*No Report.

TABLE NO. 6—DAIRY PRODUCTS.

COUNTIES.	MILK—SOLD AND USED.	
	Gallons.	Value.
Alachua .....	615,445	\$ 117,535
Baker .....	37,835	13,577
Bradford .....	91,175	9,244
Brevard .....	32,220	12,953
Calhoun .....	17,885	6,700
Citrus .....	94,270	46,329
Clay .....	121,130	16,614
Columbia .....	146,377	88,370
Dade .....	110,861	31,519
DeSoto .....	23,000	8,685
Duval .....	1,050,695	160,809
Escambia .....	344,027	104,974
Franklin .....	22,360	534
Gadsden .....	299,420	59,884
Hamilton .....	125,060	19,024
Hernando .....	59,195	18,023
Hillsborough .....	857,442	342,631
Holmes .....	291,252	57,540
Jackson .....	770,820	77,132
Jefferson .....	186,325	37,319
Lafayette .....	11,700	468
Lake .....	98,115	30,686
Lee .....	119,700	47,500
Leon .....	182,062	48,955
Levy .....	69,815	27,547
Liberty .....	142,466	31,666
Madison .....	68,572	29,307
Manatee .....	32,210	11,584
Marion .....	87,000	17,260
Monroe .....	153,360	76,680
Nassau .....	1,300	130
Orange .....	431,780	138,300
*Osceola .....		
Palm Beach .....	92,147	32,364
Pasco .....	127,306	35,946
Pinellas .....	28,706	13,151
Polk .....	21,910	6,654
Putnam .....	111,616	31,886
Santa Rosa .....	309,011	96,962
St. Johns .....	1,590	637
St. Lucie .....	20,847	8,923
*Sumter .....		
*Suwannee .....		
*Taylor .....		
Volusia .....	423,330	170,760
Wakulla .....	47,450	18,467
Walton .....	163,539	33,602
Washington .....	89,435	27,132
Totals .....	8,131,761	\$ 2,166,018

\*No Report.

TABLE NO. 6—DAIRY PRODUCTS, 1911-12—Continued.

COUNTY	BUTTER—SOLD AND USED.	
	Pounds.	Value.
Alachua .....	146,911	\$ 52,067
Baker .....	3,175	854
Bradford .....	.....	.....
Brevard .....	3,770	1,131
Calhoun .....	3,236	788
Citrus .....	22,952	8,283
Clay .....	3,325	853
Columbia .....	21,989	7,967
Dade .....	24,821	11,913
DeSoto .....	751	313
Duval .....	20,895	8,529
Escambia .....	24,837	7,192
Franklin .....	267	107
Gadsden .....	78,020	19,505
Hamilton .....	10,060	2,980
Hernando .....	4,740	1,930
Hillsborough .....	63,586	19,816
Holmes .....	84,782	21,031
Jackson .....	153,490	38,092
Jefferson .....	66,530	16,517
Lafayette .....	1,850	662
Lake .....	26,440	7,352
Lee .....	3,725	1,690
Leon .....	77,072	22,413
Levy .....	14,146	5,659
Liberty .....	25,257	11,793
Madison .....	2,356	899
Manatee .....	250	100
Marion .....	26,450	7,300
Monroe .....	.....	.....
Nassau .....	325	95
Orange .....	38,990	15,926
*Osceola .....	.....	.....
Palm Beach .....	2,785	1,345
Pasco .....	28,214	9,554
Pinellas .....	1,763	714
Polk .....	6,280	2,542
Putnam .....	8,314	2,829
Santa Rosa .....	55,609	16,496
St. Johns .....	26	7
St. Lucie .....	7,688	2,152
*Sumter .....	.....	.....
*Suwannee .....	.....	.....
*Taylor .....	.....	.....
Volusia .....	.....	.....
Wakulla .....	11,525	4,542
Walton .....	34,088	9,813
Washington .....	22,597	7,213
Totals .....	1,138,887	\$ 351,964

\*No Report.

TABLE NO. 6—DAIRY PRODUCTS, 1911-12—Continued.

COUNTIES.	CHEESE—SOLD AND USED.	
	Pounds.	Value.
Alachua .....		\$ .....
Baker .....		.....
Bradford .....		.....
Brevard .....		.....
Calhoun .....		.....
Citrus .....		.....
Clay .....		.....
Columbia .....	10	3
Dade .....		.....
DeSoto .....	30	8
Duval .....		.....
Escambia .....	30	5
Franklin .....		.....
Gadsden .....		.....
Hamilton .....		.....
Hernando .....		.....
Hillsborough .....	362	75
Holmes .....		.....
Jackson .....		.....
Jefferson .....	10	2
Lafayette .....		.....
Lake .....		.....
Lee .....		.....
Leon .....	150	40
Levy .....		.....
Liberty .....		.....
Madison .....		.....
Manatee .....		.....
Marion .....		.....
Monroe .....		.....
Nassau .....		.....
Orange .....		.....
*Osceola .....		.....
Palm Beach .....		.....
Pasco .....		.....
Pinellas .....		.....
Polk .....		.....
Putnam .....		.....
Santa Rosa .....	1,280	126
St. Johns .....		.....
St. Lucie .....		.....
*Sumter .....		.....
*Suwannee .....		.....
*Taylor .....		.....
Volusia .....		.....
Wakulla .....		.....
Walton .....		.....
Washington .....		.....
Totals .....	1,872	259

\*No Report.

TABLE NO. 7—MISCELLANEOUS PRODUCTS, 1911-12.  
(Continued.)

COUNTIES.	WOOL, (Spring Clip.)		
	No. Fleeces.	Pounds.	Value.
Alachua			\$
Baker			
Bradford			
Brevard			
Calhoun	2,604	7,612	1,898
Citrus	52	155	31
Clay	391	960	193
Columbia			
Dade			
DeSoto	240	700	160
Duval			
Escambia	5,277	15,992	3,893
Franklin			
Gadsden	120	360	90
Hamilton			
Hernando	75	225	40
Hillshorough	2,567	7,700	1,540
Holmes	8,616	23,771	6,088
Jackson	2,136	8,507	2,180
Jefferson			
Lafayette			
Lake			
Lee			
Leon	76	261	50
Levy	90	410	65
Liberty	2,314	7,106	1,461
Madison	70	185	40
Manatee	905	2,955	875
Marion	12,300	36,900	7,400
Monroe			
Nassau			
Orange			
*Osceola			
Palm Beach			
Pasco	60	200	50
Pinellas			
Polk			
Putnam			
Santa Rosa	20,625	63,984	12,904
St. Johns	510	1,575	284
St. Lucie			
*Sumter			
*Suwannee			
*Taylor			
Volusia	8,340	27,270	5,455
Wakulla	315	830	132
Walton	10,804	40,871	8,518
Washington	4,857	12,488	3,241
Totals	83,344	261,017	\$ 56,538

\*No Report.

TABLE NO. 7—MISCELLANEOUS PRODUCTS, 1911-12.  
(Continued.)

COUNTIES.	BEESWAX	
	Pounds.	Value.
Alachua .....		\$.....
Baker .....		.....
Bradford .....	40	10
Brevard .....	113	32
Calhoun .....	2,176	547
Citrus .....		.....
Clay .....	15	5
Columbia .....	180	18
Dade .....		.....
DeSoto .....		.....
Duval .....		.....
Escambia .....	47	12
Franklin .....	1,627	335
Gadsden .....		.....
Hamilton .....		.....
Hernando .....		.....
Hillborough .....		.....
Holmes .....	412	104
Jackson .....	77	22
Jefferson .....	31	3
Lafayette .....	150	30
Lake .....	10	2
Lee .....		.....
Leon .....	608	240
Levy .....	28	8
Liberty .....	2,392	595
Madison .....		.....
Manatee .....	50	11
Marion .....		.....
Monroe .....		.....
Nassau .....		.....
Orange .....	60	15
*Osceola .....		.....
Palm Beach .....	15,378	2,256
Pasco .....	210	25
Pinellas .....	30	3
Polk .....	75	15
Putnam .....	155	37
Santa Rosa .....	103	34
St. Johns .....		.....
St. Lucie .....		.....
*Sumter .....		.....
*Suwannee .....		.....
*Taylor .....		.....
Volusia .....		.....
Wakulla .....	548	130
Walton .....	230	54
Washington .....	535	213
Totals .....	25,280	\$ 4,762

\*No Report.

TABLE NO. 7—MISCELLANEOUS PRODUCTS, 1911-12.

COUNTIES.	HONEY.		
	STANDS OF BEES.	POUNDS.	VALUE.
Alachua .....	339	3,798	\$ 577
Baker .....	15	300	30
Bradford .....	302	4,770	477
Brevard .....	717	25,685	1,952
Calhoun .....	1,290	233,247	15,532
Citrus .....	33	750	81
Clay .....	200	4,595	599
Columbia .....	72	640	64
Dade .....	.....	.....	.....
DeSoto .....	89	350	274
Escambia .....	57	725	923
Escambia .....	668	5,265	679
Franklin .....	1,310	11,948	8,100
Gadsden .....	234	2,380	238
Hamilton .....	.....	.....	.....
Hernando .....	14	280	50
Hillsborough .....	39	340	34
Holmes .....	924	11,580	1,195
Jackson .....	623	6,606	667
Jefferson .....	5	60	9
Lafayette .....	745	8,450	3,505
Lake .....	97	1,925	335
Lee .....	262	4,950	1,000
Leon .....	112	1,950	210
Levy .....	65	765	126
Liberty .....	2,774	76,933	15,016
Madison .....	240	4,800	535
Manatee .....	98	5,800	656
Marion .....	.....	.....	.....
Monroe .....	.....	.....	.....
Nassau .....	4	250	25
Orange .....	603	11,410	1,141
*Osceola .....	.....	.....	.....
Palm Beach .....	1,006	12,660	1,399
Pasco .....	239	4,245	566
Pinellas .....	43	1,095	65
Polk .....	87	1,780	228
Putnam .....	428	6,417	610
Santa Rosa .....	593	13,422	1,198
St. Johns .....	297	2,788	297
St. Lucie .....	329	10,000	772
*Sumter .....	.....	.....	.....
*Suwannee .....	.....	.....	.....
*Taylor .....	.....	.....	.....
Wakulla .....	3,254	164,360	10,065
Walton .....	639	10,637	973
Walton .....	745	5,800	584
Washington .....	986	11,462	1,076
Totals .....	20,577	675,718	\$ 72,363

\*No Report.



## YEAR 1909-10.

*Table No. 8—Total Acreage of Crops.*

Field Crops, acres .....	1,103,499
Vegetable and Garden Products, acres .....	54,047

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Total acreage in cultivation ..... 1,157,546

*Table No. 9—Total Value of Farm Products.*

Table No. 1—Field Crops .....	\$14,612,840
Table No. 2—Vegetable and Garden Products. ....	6,825,912
Table No. 3—Fruit Products .....	5,905,727
Table No. 4—Live Stock .....	23,967,501
Table No. 5—Poultry and Products .....	2,413,940
Table No. 6—Dairy Products .....	2,851,479
Table No. 7—Miscellaneous Products .....	135,435

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Total .....\$56,712,734

## YEAR 1911-12.

*Table No. 8—Total Acreage of Crops.*

Field Crops, acres .....	937,264
Vegetable and Garden Products, acres .....	63,241

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Total acreage in cultivation ..... 1,000,505

*Table No. 9—Total Value of Farm Products.*

Table No. 1—Field Crops .....	\$16,051,730
Table No. 2—Vegetable and Garden Products. ....	8,056,685
Table No. 3—Fruit Products .....	9,689,774
Table No. 4—Live Stock on hand .....	23,510,479
Table No. 5—Poultry and Products .....	3,527,286
Table No. 6—Dairy Products .....	2,518,241
Table No. 7—Miscellaneous Products .....	133,713

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Total .....\$63,487,908

## **METEOROLOGICAL REPORT.**

The report which follows is presented in two parts. The Editorial matter "General summary and the weather by months," represents the salient features of the Report for 1912, while the tabular data is for the year 1911. This happens because the report entire is not available, and will not be in time for publication in the Biennial Report.

U. S. Department of Agriculture,  
**CLIMATOLOGICAL SERVICE**  
of the  
**WEATHER BUREAU**

Central Office: Washington, D. C.

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FLORIDA SECTION,  
Prof. A. J. Mitchell, Section Director.  
Year, 1912.

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**ANNUAL SUMMARY, CLIMATOLOGICAL SERVICE,  
FLORIDA SECTION.**

The year was featured by unusual heavy rains, all but 4 months giving an excess of precipitation, the departures ranging from 0.65 inch in December to 5.06 inches in June. The year was the wettest of record since 1892, the average, 64.88 inches, being 11.61 inches above normal, and 3.45 inches greater than the next wettest year, 1905. Only 3 times, since 1892, has the annual precipitation approximated 60 inches. The least annual rainfall, 45.50 inches, occurred in 1895. Slight departures from the usual distribution of barometric pressure during June and September were the chief factors in contributing to the excessive precipitation. A barometric depression of sluggish movement appeared in the Gulf of Mexico from the 6th to 10th of June, resulting in 24-hour precipitation ranging from 2 to 8 inches, and monthly totals of 15 to 26 inches—mainly over the central and the northern portions of the peninsula, although

all stations, except 2 or 3, had more than the usual amount of rain, as compared with the June normal.

The second period of maximum rainfall occurred during the 1st and 2d decades, or rather from the 5th to 14th, and from the 18th to 23d, during which 24-hour amounts ranged from 2 to 6 inches, and, over small areas, as much as 9 inches. The monthly totals at some stations exceeded even the heavy rains of June, Cedar Keys, Levy County, recording 28.14, and Pinellas, Pinellas County, 26.00 inches. The greatest annual rainfall, 80 to 90 inches, occurred over the west-central peninsula and the extreme northwestern counties, and the least, 45 to 50 inches, in St. Lucie, portions of DeSoto, and Palm Beach, Counties. The greatest annual precipitation at individual stations, 97.61 inches, occurred at Molino, Escambia County; the least 0.08 inch, at Tallahassee, Leon County. An unusual feature of precipitation was the occurrence of snow during the night of 27th-28th of November over interior northwestern counties that border on the Georgia line. The amounts ranged from a trace to about .05 inch.

The year was 0.6° warmer than the normal, the mean, 71.1°, being slightly lower than that of the previous warmest year, 72.3°, in 1911. The highest temperature, 104°, was about the average annual maxima, and the lowest, 21°, was 6° higher than the minima of 1911. The warmest weather occurred in July, and the coldest in January and February. There were no severe cold waves. Several winds storms of moderate severity prevailed over the northwestern portion, but tropical disturbances approached the State during the year. Recapitulating, the year was one of nearly normal temperature, but, of abnormal precipitation, the latter operating disadvantageously to some crops over a considerable portion of the State.

## THE WEATHER BY MONTHS.

—1912—

**JANUARY:**—The wet weather of December, 1911, extended into the current month during which alternating spells of warm and moderately cold weather occurred, the latter being the more pronounced, resulting in a temperature deficiency of  $0.6^{\circ}$ . The lowest temperatures prevailed during the second decade, with freezing temperatures over the upper counties. Rainfall was frequent and excessive, the bulk of which fell from the 1st to 13th. The mean temperature,  $56.7^{\circ}$ ; average rainfall, 5.58 inches.

**FEBRUARY:**—Unusual features for February were the generally low average temperature, the month being  $2^{\circ}$  colder than January, and the numerous disturbances of more or less severity which, in their passage east-north-east, caused wind velocities of 40 to 58 miles an hour over the northwest portion. There were frequent frosts over interior northern and central counties, and some damage resulted to vegetables. The deficiency in temperature was  $4.6^{\circ}$ . Rain was general on the 10th, 14th, and 21st, but the total was less than normal. The mean temperature,  $54.6^{\circ}$ ; the average rainfall, 3.31 inches.

**MARCHS:**—The month was unusually hoisterous—due to six disturbances that moved eastward to the north and east of this latitude. That of the 11th-12th resulted in a wind velocity of 62 miles an hour at Pensacola. As a whole, March was warmer and wetter than normal. Rains were heavy to excessive on the 6th, 12th, 16th and 24th. The coldest weather occurred generally during the first and second decades. The mean temperature,  $66.2^{\circ}$ ; the average rainfall, 4.03 inches.

**APRIL:**—Chief features of the month were the several energetic disturbances, and the unusually heavy precipitation, the latter culminating in swollen streams and flooded low lands in districts contiguous to the Suwannee and the Withlacoochee rivers. Heavy 24-hour rains were 9.50 and 6.90 inches at Blountstown and Marianna, respectively, on the 20th and 21st. The month was more than 3° warmer than usual. The mean temperature 72.8°; the average rainfall, 4.45 inches.

**MAY:**—The month was 1.9° warmer, and 1.72 inch wetter, than normal, being the wettest May but 2 since 1892. Rains were well distributed during the first half of the month, and 24-hour amounts of 3.75 and 4.74 inches occurred in several counties. The coolest period was from the 17th to 19th when there were minima in the 40's; there were maxima of 100° on the 25th and 26th. Wind squalls of high velocities occurred at Jacksonville and Pensacola. The mean temperature, 77.6°; the average rainfall, 5.48 inches.

**JUNE:**—The month was 1° cooler than usual, and it was one of the wettest Junes of record, the excess being 5.06 inches. The excessive rains were due, mainly, to a slight barometric depression that appeared in the Gulf during the first decade. The months precipitation ranged from about 4 inches over the northwestern counties to 25 and 26 inches in the peninsula. The mean temperature, 78.8°; the average rainfall, 11.61 inches.

**JULY:**—In contrast with June the month was 0.4° warmer, and 1.79 inch drier, than the normal, the absence of the usual rains contributing to some personal discomfort. The warmest weather occurred during the last decade, when the maxima were well up in the 90's. The month was remarkably free from thunder storms, and other local disturbances. The mean temperature, 81.7°; the average rainfall, 5.66 inches.

AUGUST:—The dry weather of July continued into August, and, as is usually the case, it was attended by temperatures of  $100^{\circ}$  over limited sections, although the minima did not exceed  $73^{\circ}$ . The rainfall was 1.84 inch below normal, and compared with August, since 1892, the month was the driest but 2. There were no disturbances of a tropical character. The mean temperature,  $81.5^{\circ}$ ; the average rainfall, 5.83 inches.

SEPTEMBER:—The month was warmer than usual, and it ranks among the wettest of record at some stations. The excess of 2.88 inches is further emphasized by the totals of 26.00 and 28.14 inches, respectively, at Pinellas Park and Cedar Keys—the abnormal amounts resulting from a barometric disturbance that moved slowly northward off the Gulf coast line of the peninsula. The severe storm of the 13th-14th gave wind velocities of 65 to 74 miles an hour at Pensacola. The mean temperature,  $80.5^{\circ}$ ; the average rainfall, 2.88 inches.

OCTOBER:—The month was the fourth excessive one with excessive temperature, and compared with October, since 1891, it was the warmest but 2. The excess of 0.39 inch for the month was due more to the exceptionally heavy rains on the 13th-14th over the northwest portion, rather than to uniform rainfall over the State. Under the influence of a Gulf disturbance the record of 24-hour precipitation at Pensacola was broken on the 13th-14th, when 6.58 inches fell in 12 hours and 7 minutes. The mean temperature,  $74.8^{\circ}$ ; the average rainfall, 4.07 inches.

NOVEMBER:—November was cooler, and about one-half inch wetter, than normal. The coldest periods were generally from the 15th to 21st, and from the 24th to 29th, the lowest temperature,  $25^{\circ}$ , occurring in Gadsden county; there was considerable frost in the central and northern counties. The bulk of the month's rain fell on the

6th, 7th, 21st, and 22nd, that of the two first dates causing overflows in the Suwannee river valley. The heavy rain of 10.67 inches at Miami on 21st-22nd, was confined to a small area. The mean temperature, 62.3°; the average rainfall, 2.82 inches.

DECEMBER:—A rather cold November was followed by a phenomenally warm December, the excess in temperature being 4.8°. The month was the warmest of that name, but 3, since 1891. A maximum of 86° occurred on the 4th. There were frosts, however, over interior northern districts on the 10th, 19th, 21st, 25th, and 29th, but the coldest weather occurred generally on the 20th and 28th. Precipitation was greatest on the southeast coast, and least in the Kissimmee valley; the total was less than normal. The mean temperature, 62.7°; the average rainfall, 2.43 inches.



## Monthly Summary, 1911.

MONTH.	Temperature.				Precipitation		Average number of days.			
	State average.	Departure from normal.	Highest.	Lowest.	State average.	Departure from normal.	With .01 or more rain.	Clear.	Partly cloudy.	Cloudy.
January ...	60.9	+4.0	88	16	1.39	-1.51	3	18	8	6
February ..	63.0	+3.9	89	23	0.19	-3.30	1	17	8	3
March .....	66.3	+0.4	93	28	2.20	-0.96	5	19	7	5
April .....	72.1	+2.8	96	39	2.11	-0.46	4	14	10	6
May .....	74.8	-1.0	100	43	4.43	+0.79	9	17	8	6
June .....	81.4	+1.6	104	59	4.69	-2.32	9	14	12	4
July .....	80.5	-0.6	101	56	6.07	-1.51	19	8	16	7
August ....	80.7	-0.6	100	60	9.01	+1.20	16	11	13	7
September ..	81.2	+2.0	100	53	3.95	-3.25	9	16	11	3
October ....	76.6	+4.6	99	40	6.25	+1.16	9	15	9	7
November ...	66.7	+1.6	97	20	4.16	+1.89	8	11	10	9
December ...	63.2	+5.1	89	20	4.68	+1.46	9	13	10	8

## Comparative Annual Data for Florida.

YEAR.	Temperature.				Precipitation.	
	Mean.	Departure from the normal.	Highest.	Lowest.	Average	Departure from the normal.
1892 .....	70.4	-0.2	101	22	47.99	-4.42
1893 .....	71.0	+0.4	104	19	63.01	+0.60
1894 .....	71.2	+0.6	101	12	52.51	+0.10
1895 .....	69.9	-0.7	100	11	45.60	-5.91
1896 .....	71.0	+0.4	103	20	49.62	-2.79
1897 .....	71.2	+0.6	104	17	66.69	+4.28
1898 .....	70.5	-0.1	102	17	48.36	-4.05
1899 .....	71.0	+0.4	104	2	63.93	+1.62
1900 .....	70.7	+0.1	104	13	61.19	+3.78
1901 .....	68.8	-1.8	107	12	68.47	+6.06
1902 .....	70.8	+0.2	105	16	61.24	-1.17
1903 .....	69.8	-0.8	105	17	65.79	+3.38
1904 .....	69.9	-0.7	102	29	48.15	-4.26
1905 .....	70.5	-0.1	103	10	61.43	+9.02
1906 .....	70.9	+0.3	101	14	53.76	+1.35
1908 .....	71.2	+0.6	103	20	48.54	-3.37
1909 .....	71.1	+0.5	103	16	49.62	-2.89
1907 .....	71.5	+0.9	102	21	49.16	-3.26
1910 .....	69.2	-1.4	102	19	50.88	-1.63
1911 .....	72.3	+1.7	104	16	47.40	-5.01

## Killing Frosts, 1911.

STATIONS.	Last in Spring.	First in Autumn.
Northern Section.		
Archer .....	Feb. 24	†Nov. 25
Cedar Keys .....	Jan. 5	Nov. 30
Federal Point .....	Jan. 5	Nov. 30
Fernandina .....	Jan. 5	Nov. 25
Gainesville .....	Feb. 24	Nov. 25
Hilliard .....	Feb. 25	Nov. 25
Jacksonville .....	Feb. 24	Nov. 25
Jasper .....	Mar. 6	Nov. 24
Jobstown .....	Feb. 25	Nov. 25
Lake City .....	Feb. 24	Nov. 25
Live Oak .....	†Feb. 25	*
Macclenny .....	Mar. 17	Nov. 25
Middleburg .....	Mar. 4	Nov. 25
St. Augustine .....	Feb. 25	Nov. 30
Satsuma Heights .....	Feb. 25	Nov. 25
Switzerland .....	Feb. 24	Nov. 30
Central Section.		
Bartow .....	Feb. 25	Dec. 1
Brooksville .....	Feb. 24	Dec. 1
Clermont .....	Feb. 25	None.
DeLand .....	Mar. 4	Dec. 1
Eustis .....	Jan. 5	Dec. 1
Fort Meade .....	Feb. 25	Dec. 1
Fort Pierce .....	*	None.
Grasmere .....	Feb. 25	Dec. 1
Inverness .....	Feb. 25	Dec. 1
Kissimmee .....	Jan. 5	None.
Malabar .....	Feb. 25	None.
Merritts Island .....	None.	None.
New Smyrna .....	Feb. 23	None.
Ocala .....	*	*
Orange City .....	Mar. 4	Dec. 1
Orlando .....	Feb. 25	None.
Pinellas Park .....	*	None.
Plant City .....	Feb. 25	Dec. 1
Rockledge .....	Feb. 23	None.
Rockwell .....	†Feb. 25	Nov. 30
St. Leo .....	Feb. 24	Dec. 1
Tampa .....	Jan. 5	None.
Tarpon Springs .....	Feb. 24	Dec. 1
Titusville .....	Feb. 24	None.

## Killing Frosts, 1911—Continued.

STATIONS.	Last in Spring.	First in Autumn.
<b>Southern Section.</b>		
Arcadia .....	Feb. 25	None.
Avon Park .....	Feb. 25	None.
Bradentown .....	Feb. 25	None.
Fort Myers .....	None.	None.
Homestead .....	None.	None.
Hypoluxo .....	*	None.
Jupiter .....	None.	*
Key West .....	None.	None.
Miami .....	None.	None.
<b>Western Section.</b>		
Apalachicola .....	Feb. 23	Nov. 25
Blountstown .....	*	Nov. 13
Bonifay .....	Mar. 17	*
Carrabelle .....	Mar. 3	Nov. 25
DeFuniak Springs .....	Feb. 25	Nov. 13
Fenholloway .....	*	*
Madison .....	Feb. 25	Nov. 25
Marianna .....	Mar. 17	Nov. 13
Molino .....	Mar. 17	Nov. 13
Monticello .....	Mar. 17	Nov. 13
Mount Pleasant .....	*	Nov. 13
Pensacola .....	Feb. 23	Nov. 25
St. Andrew .....	Mar. 3	Nov. 25
Tallahassee .....	Feb. 24	Nov. 13
Wausau .....	Mar. 17	Nov. 10

\*Record incomplete.

†Data incomplete, but this date probably correct.

**Climatological Data for the Year 1911.**

STATIONS.	COUNTIES.	Elevation, feet.	Temperature in Degrees, Fahrenheit.					
			Length of record, years.	Annual mean.	Highest.	Date.	Lowest.	Date.
Northern Section.								
Archer .....	Alachua .....	92	27	.....	97	June 24	.....	.....
Cedar Keys .....	Levy .....	10	23	.....	95	June 24	31	Nov. 30
Federal Point .....	Putnam .....	5	20	72.0	100	June 15	29	Jan. 5
Fernandina .....	Nassau .....	10	19	70.2	99	June 17	28	Jan. 5
Gainesville .....	Alachua .....	176	18	71.5	100	June 24	24	Jan. 5
Hilliard .....	Nassau .....	19	3	69.4	99	June 16*	24	Jan. 5
Huntington .....	Putnam .....	56	14	.....	101	June 24	.....	.....
Jacksonville .....	Duval .....	101	41	70.9	99	June 16	26	Jan. 5
Jasper .....	Hamilton .....	152	11	59.9	101	July 12	25	Jan. 6*
Johnstown .....	Bradford .....	125	12	71.1	101	June 16	23	Jan. 5
Lake City .....	Columbia .....	210	27	70.7	99	June 16*	23	Jan. 5
Live Oak .....	Suwannee .....	109	12	.....	101	June 16*	25	Jan. 5
Macleenny .....	Baker .....	125	15	.....	.....	.....	22	Jan. 5
Middleburg .....	Clay .....	10	11	.....	104	June 17	.....	.....
St. Augustine .....	St. Johns .....	10	60	72.6	102	June 1	27	Jan. 5
Satsuma Heights .....	Putnam .....	98	4	72.0	103	June 17*	26	Jan. 5

Switzerland .....	St. Johns .....	10	19	....	100	June 16	28	Jan. 5
<b>Central Section.</b>								
Bartow .....	Polk .....	115	24	73.3	101	June 15*	27	Feb. 24*
Brooksville .....	Hernando .....	126	19	....	98	June 4*	35	Jan. 5
Clermont .....	Lake .....	105	19	74.9	100	June 15*	31	Jan. 5
DeLand .....	Volusia .....	27	15	71.6	98	June 24	25	Feb. 24
Eustis .....	Lake .....	56	21	74.0	101	June 16*	29	Jan. 5
Fort Meade .....	Polk .....	125	23	74.3	100	June 18	25	Feb. 25
Fort Pierce .....	St. Lucie .....	6	11	....	98	June 15	....	....
Grasmere .....	Orange .....	175	14	72.6	98	June 2	27	Jan. 5
Inverness .....	Citrus .....	43	12	71.8	98	May 28	27	Feb. 24
Kissimmee .....	Osceola .....	65	19	74.6	100	June 16*	31	Jan. 5
Malabar .....	Brevard .....	24	18	....	100	June 15	32	Feb. 24
Merritts Island .....	Brevard .....	20	29	73.1	94	Sept. 12	37	Feb. 23
New Smyrna .....	Volusia .....	9	27	73.2	98	June 17	29	Jan. 5
Ocala .....	Marion .....	98	22	....	102	June 25	....	....
Orange City .....	Volusia .....	39	18	72.5	102	June 16	25	Feb. 23*
Orlando .....	Orange .....	111	19	73.8	97	June 16*	29	Feb. 24
Pinellas .....	Pinellas .....	20	..	....	....	....	....	....
Plant City .....	Hillsboro .....	121	18	74.0	104	June 15*	29	Jan. 5
Rockledge .....	Brevard .....	28	4	73.4	94	June 14*	33	Feb. 23
Rockwell .....	Marion .....	10	10	....	97	June 23*	26	Jan. 5
St. Leo .....	Pasco .....	140	15	72.8	95	June 2*	27	Jan. 5
Tampa .....	Hillsboro .....	79	22	73.4	95	June 24	31	Jan. 5
Tarpon Springs .....	Hillsboro .....	20	27	73.4	96	Sept. 14	29	Jan. 5
Titusville .....	Brevard .....	6	16	....	....	....	32	Jan. 5
<b>Southern Section.</b>								
Arcadia .....	DeSoto .....	61	11	74.3	99	June 2*	28	Feb. 25

Climatological Data for the Year 1911.—Continued.

STATIONS.	COUNTIES.	Elevation, feet.	Temperature in Degrees, Fahrenheit.					
			Length of record. years.	Annual mean.	Highest.	Date.	Lowest.	Date.
Southern Section.								
Avon Park .....	DeSoto .....	150	13	74.2	98	June 16	31	Feb. 24*
Bradentown .....	Manatee .....	10	28	72.3	91	June 16*	34	Feb. 25
Fort Myers .....	Lee .....	12	40	74.5	94	June 3	39	Feb. 24*
Homestead .....	Dade .....	5	2	74.7	96	Aug. 26*	37	Feb. 25
Hypoluxo .....	Palm Beach .....	4	16	.....	.....	.....	.....	.....
Key West .....	Monroe .....	14	41	77.5	90	July 26*	54	Nov. 30
Miami .....	Dade .....	47	10	76.6	93	Aug. 26	43	Feb. 25
Observation Island .....	Palm Beach .....	10	.....	.....	.....	.....	.....	.....
Western Section.								
Apalachicola .....	Franklin .....	24	8	70.6	96	June 13	25	Jan. 4
Blountstown .....	Calhoun .....	.....	3	.....	.....	.....	.....	.....
Bonifay .....	Holmes .....	111	9	.....	.....	.....	.....	.....
Carrabelle .....	Franklin .....	10	13	.....	.....	.....	23	Jan. 4
DeFuniak Springs .....	Walton .....	193	14	69.8	102	June 15	17	Jan. 4

Fenholloway .....	Taylor .....	75	5	....	100	May 27*	24	Jan. 24*
Madison .....	Madison .....	200	12	70.1	102	June 16	24	Jan. 4
Marianna .....	Jackson .....	80	9	69.3	100	Sept. 14	18	Jan. 5
Molino .....	Escambla .....	49	10	68.5	101	June 15*	15	Jan. 4
Monticello .....	Jefferson .....	207	8	70.2	101	June 16*	21	Nov. 25
Mt. Pleasant .....	Gadsden .....	260	6	....	....	....	....	....
Pensacola .....	Escambla .....	149	32	69.7	96	Aug. 8	18	Jan. 4
St. Andrew .....	Washington .....	49	15	70.5	100	Aug. 7	20	Jan. 4
St. Marks .....	Wakulla .....	11	11	....	....	....	....	....
Tallahassee .....	Leon .....	192	25	69.1	96	June 15*	22	Jan. 4
Wausau .....	Washington .....	250	12	....	101	June 2*	..	....
Mean and extremes....	.....			72.3	104	June 15*	15	Jan. 4

T—Amount too small to measure.

\* On other dates also.

Climatological Data for the Year 1911—Continued.

STATIONS.	COUNTIES.	Precipitation in inches.						Number of rainy days.	Sky.			Prevalling Direction of wind.	
		Length of record, years.	Total for the year.	Greatest monthly amount.	Month.	Least monthly amount.	Month.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Northern Section.													
Archer .....	Alachua .....	27											
Cedar Keys.....	Levy .....	25	43.34	11.15	Aug.	0.00	Feb.	79				n. w.	
Federal Point.....	Pulnam .....	20	42.69	9.56	July.	0.09	Feb.	123	166	152	47	n. e.	
Fernandina .....	Nassau .....	19	35.29	9.42	Aug.	0.30	Feb.	94				n. e.	
Gainesville .....	Alachua .....	23	38.84	8.16	Aug.	0.13	Feb.	96					
Hilliard .....	Nassau .....	3	56.46	17.39	Aug.	0.30	Feb.	71					
Hunllington .....	Putnam .....	13											
Jacksonville .....	Duval .....	41	35.38	10.16	Aug.	0.13	Feb.	107	135	142	83	n. e.	
Jasper .....	Hamilton .....	11	57.40	15.35	Aug.	0.34	Feb.	95	143	106	116	n. e.	
Johnstown .....	Bradford .....	15	48.48	14.56	Aug.	0.29	Feb.	109	220	110	35		
Lake City .....	Columbia .....	28				0.35	Feb.					n. e.	
Live Oak .....	Suwannee .....	16				0.15	Feb.						
Macclenny .....	Baker .....	15				0.15	Feb.						
Middleburg .....	Clay .....	11	40.72	10.54	Aug.	0.10	Feb.						
St. Augustine .....	St. Johns.....	43	31.59	5.83	Ocl.	0.00	Feb.	72	298	22	45	e.	
Satsuma Heights .....	Pulnam .....	4	39.91	8.14	Aug.	0.14	Feb.	93	109	214	42		



Central Section.													
Switzerland .....	St. Johns .....	20											
Bartow .....	Polk .....	24	42.61	10.76	July.	0.00	Feb.	121	104	118	143	n. e.	
Brooksville .....	Hernando .....	19	53.12	10.31	Sept.	0.10	Feb.	80					
Clermont .....	Lake .....	19	41.93	7.90	July.	0.00	Feb.	72	137	104	34	n. e.	
DeLand .....	Volusia .....	9	41.36	7.28	Aug.	0.02	Feb.	111	179	112	74	n. e.	
Eustis .....	Lake .....	21	37.95	7.76	Aug.	T.	Feb.					n. e.	
Fort Meade .....	Polk .....	29	43.42	8.89	July.	T.	Feb.	94	218	101	46	n. e.	
Fort Pierce .....	St. Lucie .....	16						102					
Grasmore .....	Orange .....	9	60.25	8.21	July.	T.	Feb.	85					
Inverness .....	Citrus .....	12	48.23	10.00	July.	0.00	Feb.	73	64	228	73	n. e.	
Kissimmee .....	Osceola .....	19	41.25	3.22	Aug.	0.00	Feb.	97				s. e.	
Malabar .....	Brevard .....	19	45.80	8.00	Aug.	0.06	Feb.	104	44	286	33	e.	
Merritts Island .....	Brevard .....	33	40.58	8.17	Nov.	0.08	Feb.	100					
New Smyrna .....	Volusia .....	28	35.30	5.83	Nov.	0.04	Feb.						
Ocala .....	Marion .....	21						94				s. w.	
Orange City .....	Volusia .....	24	41.19	6.21	Aug.	T.	Feb.	97				e.	
Orlando .....	Orange .....	20	39.61	6.27	July.	0.06	Feb.						
Pinellas Park .....	Pinellas .....							87				e.	
Plant City .....	Hillsboro .....	18	42.45	11.23	Aug.	0.00	Feb.	81				n. e.	
Rockledge .....	Brevard .....	4	33.74	5.06	Oct.	0.00	Feb.						
Rockwell .....	Marion .....	11		7.11	May.			106				e.	
St. Leo .....	Pasco .....	15	54.95	12.17	July.	0.01	Feb.	96	143	152	70	n. e.	
Tampa .....	Hillsboro .....	22	44.13	7.01	Sept.	0.05	Feb.	92	192	128	45	w.	
Tarpon Springs .....	Hillsboro .....	20	66.56	14.31	Aug.	0.06	Feb.	148	88	154	123		
Titusville .....	Brevard .....	16	47.45	8.47	June	0.09	Feb.						
Southern Section.													
Arcadia .....	DeSoto .....	11	35.84	7.17	Aug.	0.10	Feb.	129	156	184	25	e.	

Climatological Data for the Year 1911—Continued.

STATIONS.	COUNTIES.	Precipitation in inches.						Number of rainy days.	Sky.			Prevailing Direction of wind.
		Length of record. years.	Total for the year.	Greatest monthly amount.	Month.	Least monthly amount.	Month.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Southern Section.												
Avon Park .....	DeSoto .....	13	38.50	8.01	July.	T.	Feb.	121	175	115	75	n. e.
Bradentown .....	Manatee .....	28	50.02	8.93	July.	T.	Feb.	83	.....	.....	.....	.....
Fort Myers .....	Lee .....	44	49.09	11.19	Aug.	T.	Feb.	81	256	89	20	e.
Homestead .....	Dade .....	2	61.82	10.49	Nov.	0.00	Feb.	149	181	146	38	e.
Hypoluxo .....	Palm Beach .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Key West .....	Monroe .....	41	35.67	7.89	Aug.	0.01	Feb.	121	165	140	60	n. e.
Miami .....	Dade .....	26	54.12	12.12	May.	T.	Feb.	123	.....	.....	.....	n. o.
Observation Island.....	Palm Beach .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Western Section.												
Apalachicola .....	Franklin .....	8	48.13	10.14	Aug.	0.03	Feb.	67	.....	.....	.....	s. e.
Blountstown .....	Calhoun .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bonifay .....	Holmes .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carrabelle .....	Franklin .....	13	46.88	9.07	Dec.	0.36	Feb.	76	.....	.....	.....	.....
DeFuniak Springs.....	Walton .....	14	62.74	11.01	Aug.	0.97	Feb.	86	.....	.....	.....	.....



**Manufactures**  
**FOR THE**  
**Year Ending Dec. 31, 1911**

## MANUFACTURES.

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*Year Beginning January 1, 1911, and Ending December 31, 1911.*

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This schedule of the statistical report is necessarily for the calendar year 1911, as it is not practicable to divide the business year into two divisions, as in the case of the Agricultural statistics. There are a number of omissions in this report owing to the refusal of some persons to supply the information asked of them by the Enumerators. While there can be no valid reason for withholding such information from the Enumerators, because every intelligent person knows, and manufacturers are so informed by the Enumerators, that no private business will be exposed, that only aggregate quantities are wanted, yet, there are many persons whose secretiveness and selfishness far outweigh their patriotism and regard for the welfare of their community; and the community in such instances has to suffer therefor. It will be noted that four counties are not reported. This we consider is a serious omission on the part of the county authorities, indicating a lack of appreciation of the importance of these matters. However, the splendid showing made in our manufacturing and industrial affairs is gratifying.

The information usually most sought in connection with manufacturing and industrial work, is contained in the following tables, the heads of which clearly express the meaning of each.

No better advertisement of a State or County can be made than the publication of its industrial progress and development, and to those interested in such matters and who wish information as to the possibilities of invest-

ments in such lines of activity in this State, the statistics are well worth careful perusal.

We beg to direct attention to the classified tables by counties; the results there disclosed are of unusual interest and show plainly the results of the past two years. All of the counties are noticeable for their progress and development in industrial work.

Table No. 1—Shows a general classification of all industries reported in the State. The selections of the several classes of industries were arranged according to their value as principle products. Also products for a given industry may, on the one hand, include one or more minor products very different from those covered by the class designated, and, also may not include the total product covered by this designation, for the reason that some portion of this product may be made in other classes or establishments in which it is not the product of principal value. Thus it will be noted that portions of one class of products are combined in the class of some other product. This is unavoidable, because in many establishments several products belonging to widely different classes are manufactured in the same establishment by the same power and working force. Oftener than otherwise under such conditions no separate accounts are kept. This explains the difficulty and impossibility of a strict classification.

Table No. 2—Shows the number of establishments reporting, capital invested, average number of wage earners and the total wages paid by the counties. In this table the aggregates are shown.

Table No. 3—Shows the average number of wage earners of specified ages, the amount of wages paid each and the greatest and smallest number of each class employed during the year, the output of ores of the various mines of ullers earth, kaolin and phosphates, cost of material and value of all of the products of industry of the several counties.

Table No. 4—Shows the products of ginneries of the State, pounds of cotton of both staples, and bushels of seed of both staples. The number of gins is found in the classified list by counties.

Table No. 5—Shows the industries by counties, giving the numbers in each county, the aggregate amount of capital invested in each class, the average number of wage earners and their total wages; the average number of persons engaged in these industries of specified ages, and wages paid them; the largest and smallest number engaged in each industry; the cost of manufacture, and the value of the products of each of the industries by counties.

TABLE NO. 1.—GENERAL CLASSIFICATION OF ALL INDUSTRIES REPORTED IN THE STATE.

NAME OF INDUSTRY.	Number of Establish- ments Reporting.	Capital Invested (including lands, build- ings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
Saw Mills and Products.....	528	\$ 13,271,658	13,083	\$ 5,098,508
Naval Stores. (Turpentine and Rosin).....	520	14,370,088	21,262	6,047,048
Ginneries and Products.....	102	504,275	841	118,130
Grist Mills and Products.....	147	128,775	322	57,581
Shingle Manufacture.....	20	697,400	976	484,000
Planing Mills, and Varied Products.....	34	822,320	824	378,013
Mining (Phosphate, Kaolin, Fullers Earth).....	55	13,346,800	5,736	4,165,467
Blacksmithing and Repair Works.....	325	294,740	689	836,753
Ice Manufacture combined with Electric Light.....	53	2,352,350	761	470,985
Electric Light, Power, and Ice combined.....	20	4,304,750	672	542,305
Artificial Stone and Cement Manufacture.....	57	246,450	684	462,587
Brick Manufacture.....	16	171,600	504	215,660
Bakeries and Confectionery Products.....	107	403,700	544	332,482
Cooperage Works.....	58	62,925	180	42,523
General Repair Shops.....	23	35,600	51	32,165
Machine Shops and Repair Works.....	30	318,350	228	221,244
Millinery and Women's Tailoring.....	151	280,750	400	262,675
Novelty Works.....	26	86,300	99	66,150
Bottling Works, Beer and Soft Drinks Manufacture.....	43	653,125	385	245,737



Iron, Brass, Foundry and Machine Shops, combined.....	24	549,600	434	272,732
Irrigation and Water Pumping Plants.....	70	204,170	188	46,658
Laundry and Repair Shops.....	58	401,200	567	253,420
Shoemaking and Repair Shops.....	102	47,745	184	129,504
Ship, Boat Building and Repair Works.....	51	631,575	626	428,526
Marine Ways and Dry Docks.....	15	201,100	150	98,032
Watchmaking and Repairing.....	62	98,415	96	90,200
Plumbing, Tinning, Gas Fitting and Repairing.....	80	406,350	476	441,320
Publishing, Printing and Job Work.....	81	1,025,157	1,260	624,779
Automobile, Bicycle and Motorcycle Repairing.....	139	890,750	730	533,230
Building and Repair Work.....	496	1,740,665	4,516	3,468,672
Men's Tailoring and Repairing.....	123	165,315	282	214,126
Canneries, Fruits and Vegetables.....	21	73,595	254	40,292
Art Printing.....	34	65,870	77	60,550
Woodwork and Repair Shops.....	20	21,000	155	67,294
Crate and Basket Manufacture and Novelty Works.....	13	763,000	839	285,411
Planing Mills, Sash, Doors and Blinds, combined.....	13	414,750	312	156,658
Harness Manufacture and Shoe Repairing, combined.....	0	5,100	13	12,075
Cigar Manufacture.....	235	4,768,000	11,846	9,148,634
Preserves and Jelly Manufacture.....	4	6,000	24	6,525
Dry Kilns and Stave Manufacture.....	15	108,050	66	30,030
Lime Manufacturing Works.....	3	127,000	191	24,100
Sponge Fishing and Packing.....	3	380,000	1,600	574,000
Syrup Manufacture.....	340	60,300	1,334	27,467
Packing Houses (fruit).....	52	304,050	1,278	201,210
Wall Decorating.....	17	28,080	105	95,450
Plumbing, Electric, Sheet Metal and Light Works.....	10	332,503	158	55,720
Carriage and Wagon Manufacture and Repair.....	10	136,300	179	151,340
Tile Manufacturing.....	4	1,800	43	49,000
Locksmith and Gunsmith.....	4	4,700		8,400
Fertilizer Manufacture.....	9	1,140,000	1,310	620,000
Fish and Oyster Packing.....	42	903,850	1,021	468,280

TABLE NO. 1.—GENERAL CLASSIFICATION OF ALL INDUSTRIES REPORTED IN STATE.—Continued.

NAME OF INDUSTRY.	Number of Establish- ments Reporting.	Capital Invested (including lands, build- ings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
Crate and Cigar Box Factory .....	8	504,500	132	368,340
Cabinet Work and Furniture Repairing .....	21	30,800	79	52,900
Steam Fitting and Repairing .....	6	25,500	22	25,600
Dye Works .....	2	800	4	3,000
Engraving and Electrotyping .....	1	5,000	8	8,000
Paint Manufacture .....	1	50,000	17	17,000
Wood Distillation Works .....	1	150,000	40	19,000
Turpentine Still Manufacture .....	1	6,000	6	4,680
Cypress Lumber and Shingle Manufacture .....	1	360,262	350	120,000
Palmetto Fibre Manufacture .....	2	42,000	40	18,250
Scale and Fixture Manufacture and Repairing .....	1	25,000	11	15,600
Spring Bed Manufacture .....	2	40,000	45	25,000
Cross Tie Manufacture .....	4	5,900	17	6,000
Cedar Manufacture .....	2	8,550	100	40,505
Extracts and Chemical Manufacture .....	1	47,500	28	32,000
Awning Manufacture .....	5	19,000	14	16,000
Hat Manufacture and Repairing .....	10	10,150	31	19,500
Tallow Manufacture .....	1	2,200	5	3,500
Storage .....	8	46,500	61	38,600

Blow Pipe Manufacture .....	1	15,000	14	9,000
Metal Stamps Manufacture .....	1	1,000	2	2,700
Upholstering .....	4	10,500	0	10,400
Gaa Engine Manufacture .....	2	20,600	9	10,800
Screen Manufacture .....	5	11,700	21	19,800
Floral Decorating .....	6	173,000	33	26,380
Razor Hone Manufacture and Repairing .....	10	6,875	26	21,000
Sculpture and Plaater Work .....	2	6,000	4	6,700
Electrcal Work and Repairing .....	6	73,700	76	78,200
Coffee Roasting .....	2	108,000	4	2,800
Moving Picture Machinery Manufacture .....	2	5,000	4	4,400
Boiler Making and Repairing .....	2	6,000	11	15,500
Composition Capital Manufacture .....	1	12,000	25	20,000
Window and Door Frame Manufacture .....	4	14,000	22	22,000
Sheet Metal Manufacture .....	10	32,300	52	63,844
Vulcanizing .....	5	9,700	12	13,000
Bag Manufacture .....	2	80,000	90	27,000
Vinegar Manufacture .....	1	2,000	8	5,000
Blue Point Manufacture .....	2	4,000	8	5,500
Mattress Manufacture .....	1	10,000	12	9,000
Yeast Manufacture .....	1	4,000	7	7,000
Cleaning, Pressing and Repairing .....	85	79,870	303	177,133
Marble Worka .....	4	66,600	48	69,000
Chair Manufacture .....	1	30,000	15	9,000
Trunk Manufacture .....	1	25,000	15	12,000
Broom Manufacture .....	2	50,000	40	31,000
Miscellaneous Special Industries .....	347	3,310,536	3,065	1,440,778

TABLE NO. 1.—GENERAL CLASSIFICATION OF ALL INDUSTRIES REPORTED IN STATE—Continued.

NAME OF INDUSTRY.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years	
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.
Saw Mills and Products.....	12,697	\$ 5,055,238	179	\$ 21,800	208	\$ 21,530
Naval Stores, Turpentine and Rosin.....	19,835	5,883,864	594	60,064	845	104,120
Ginneries and Products.....	818	116,184	9	770	14	1,185
Grist Mills and Products.....	320	57,181	2	400	.....	.....
Shingle Manufacture.....	976	484,000	.....	.....	.....	.....
Pianing Mills, and Varied Products.....	811	374,525	1	750	12	2,708
Mining (Phosphate, Kaolin, Fullers Earth).....	5,514	4,148,510	10	1,000	212	15,957
Blacksmithing and Repair Works.....	680	385,785	1	600	2	508
Ice Manufacture combined with Electric Light.....	759	479,785	.....	.....	2	200
Electric Light, Power, and Ice combined.....	671	541,005	110	84,950	.....	.....
Artificial Stone and Cement Manufacture.....	684	462,587	.....	.....	.....	.....
Brick Manufacture.....	503	215,210	.....	.....	1	450
Bakeries and Confectionery Products.....	440	345,430	101	39,032	.....	.....
Cooperage Works.....	189	42,523	.....	.....	.....	.....
General Repair Shops.....	50	30,957	.....	.....	1	208
Machine Shops and Repair Works.....	226	220,044	2	1,200	.....	.....
Millinery and Women's Tailoring.....	50	24,700	344	238,075	.....	.....
Novelty Works.....	99	66,150	.....	.....	.....	.....

Bottling Works, Beer and Soft Drinks Manufacture.....	359	214,317	6	2,340	5	2,080
Iron, Brass, Foundry and Machine Shops, combined.....	434	272,732				
Irrigation and Water Pumping Plants.....	188	46,658				
Laundry and Repair Shops.....	204	116,550	363	136,850		
Shoemaking and Repair Shops.....	184	129,504				
Ship, Boat Building and Repair Works.....	626	428,526				
Marine Ways and Dry Docks.....	150	98,032				
Watchmaking and Repairing.....	87	88,100	9	2,100		
Plumbing, Tinning, Gas Fitting and Repairing.....	476	441,320				
Publishing, Printing and Job Work.....	693	584,905	57	32,950	510	7,764
Automobile, Bicycle and Motorcycle Repairing.....	734	532,980			2	240
Building and Repair Work.....	4,448	3,419,164	68	49,510		
Men's Tailoring and Repairing.....	281	213,502	1	624		
Canneries, Fruits and Vegetables.....	226	47,577	9	765	19	950
Art Printing.....	64	51,700	13	8,850		
Woodwork and Repair Shops.....	144	65,308			11	1,976
Crate and Basket Manufacture and Novelty Works.....	698	270,306	61	3,815	80	5,290
Planing Mills, Sash, Doors and Blinds, combined.....	262	151,983			50	4,975
Harness Manufacture and Shoe Repairing, combined.....	13	12,075				
Cigar Manufacture.....	9,623	8,007,487	2,213	1,130,339	9	2,808
Preserves and Jelly Manufacture.....	24	8,525				
Dry Kilns and Stave Manufacture.....	66	30,630				
Lime Manufacturing Works.....	88	15,410	48	4,800	55	3,850
Sponge Fishing and Packing.....	1,800	574,000				
Syrup Manufacture.....	1,334	27,467				
Packing Houses (fruit).....	1,265	288,210	13	3,000		
Wall Decorating.....	103	93,850	2	1,600		
Plumbing, Electric, Sheet Metal and Light Works.....	157	55,590			1	130
Carriage and Wagon Manufacture and Repair.....	179	151,340				
Tile Manufacturing.....	43	49,000				
Locksmith and Gunsmith.....	8	8,400				
Fertilizer Manufacture.....	1,310	620,000				

TABLE NO. 1.—GENERAL CLASSIFICATION OF ALL INDUSTRIES REPORTED IN STATE.—Continued.

NAME OF INDUSTRY.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years	
	Average Number	Wages.	Average Number	Wages.	Average Number	Wages.
Fish and Oyster Packing .....	1,021	468,230	.....	.....	.....	.....
Crate and Cigar Box Factory .....	401	299,700	159	66,144	12	2,496
Cabinet Work and Furniture Repairing .....	79	52,000	.....	.....	.....	.....
Steam Fitting and Repairing .....	22	25,000	.....	.....	.....	.....
Dye Works .....	4	3,000	.....	.....	.....	.....
Engraving and Electrotyping .....	8	8,000	.....	.....	.....	.....
Paint Manufacture .....	17	17,000	.....	.....	.....	.....
Wood Distillation Works .....	40	19,000	.....	.....	.....	.....
Turpentine Still Manufacture .....	6	4,080	.....	.....	.....	.....
Cypress Lumber and Shingle Manufacture .....	339	114,000	1	1,500	10	3,600
Palmetto Fibre Manufacture .....	34	15,550	6	2,700	.....	.....
Scale and Fixture Manufacture and Repairing .....	9	13,520	2	2,080	.....	.....
Spring Bed Manufacture .....	45	25,000	.....	.....	.....	.....
Cross Tie Manufacture .....	17	6,000	.....	.....	.....	.....
Cedar Manufacture .....	54	28,616	28	7,239	18	3,650
Extracts and Chemical Manufacture .....	28	32,600	.....	.....	.....	.....
Awning Manufacture .....	14	16,600	.....	.....	.....	.....
Hat Manufacture and Repairing .....	27	16,900	4	2,600	.....	.....

Tallow Manufacture .....	5	3,500				
Storage .....	61	38,000				
Blow Pipe Manufacture .....	14	9,000				
Metal Stamps Manufacture .....	2	2,700				
Upholstering .....	9	10,400				
Gaa Engine Manufacture .....	9	10,800				
Screen Manufacture .....	21	19,800				
Floral Decorating .....	31	24,880	2	1,500		
Razor Hone Manufacture and Repairing .....	26	21,000				
Sculpture and Plaster Work .....	4	6,700				
Electrical Work and Repairing .....	72	76,130	4	2,080		
Coffee Roasting .....	4	2,800				
Moving Picture Machinery Manufacture .....	4	4,400				
Boiler Making and Repairing .....	11	15,500				
Composition Capital Manufacture .....	25	20,000				
Window and Door Frame Manufacture .....	22	22,000				
Sheet Metal Manufacture .....	53	63,844				
Vulcanizing .....	12	13,000				
Bag Manufacture .....	55	18,000	35	9,000		
Vinegar Manufacture .....	8	5,000				
Blue Point Manufacture .....	0	4,600	2	000		
Mattress Manufacture .....	12	9,000				
Yeast Manufacture .....	7	7,000				
Cleaning, Pressing and Repairing .....	292	171,932	11	5,200	1	200
Marble Work .....	48	69,000				
Chair Manufacture .....	15	9,000				
Trunk Manufacture .....	15	12,000				
Broom Manufacture .....	40	31,000				
Miscellaneous Special Industries .....	3,014	1,414,733	34	20,704	17	5,341

TABLE NO. 1.—GENERAL CLASSIFICATION OF ALL INDUSTRIES REPORTED IN STATE—Continued.

NAME OF INDUSTRY.	Greatest Number Em- ployed at Any One Time During Year in This Industry.	Least Number Em- ployed at Any One Time During Year in This Industry.	Mines and Mining Products.		
			Character of Ores Mined.		
			Tons Kaolin.	Tons Fullers' Earth.	Tons Phosphate.
Saw Mills and Products.....	15,399	9,789	.....	.....	.....
Naval Stores, Turpentine and Rosin.....	26,152	15,101	.....	.....	.....
Ginneries and Products.....	1,008	581	.....	.....	.....
Grist Mills and Products.....	352	201	.....	.....	.....
Shingle Manufacture.....	1,251	790	.....	.....	.....
Planing Mills, and Varied Products.....	950	634	.....	.....	.....
Mining (Phosphate, Kaolin, Fullers' Earth).....	6,327	4,558	18,600	0.120	2,878,855
Blacksmithing and Repair Works.....	841	549	.....	.....	.....
Ice Manufacture combined with Electric Light.....	948	589	.....	.....	.....
Electric Light, Power, and Ice combined.....	799	591	.....	.....	.....
Artificial Stone and Cement Manufacture.....	1,120	381	.....	.....	.....
Brick Manufacture.....	675	340	.....	.....	.....
Bakeries and Confectionery Products.....	681	424	.....	.....	.....
Cooperage Works.....	109	126	.....	.....	.....
General Repair Shops.....	65	43	.....	.....	.....
Machine Shops and Repair Works.....	294	178	.....	.....	.....
Millinery and Women's Tailoring.....	513	297	.....	.....	.....



Novelty Works .....	131	80	.....	.....	.....
Bottling Works, Beer and Soft Drinks Manufacture.....	467	283	.....	.....	.....
Iron, Brass, Foundry and Machine Shops, combined.....	579	332	.....	.....	.....
Irrigation and Water Pumping Plants.....	105	124	.....	.....	.....
Laundry and Repair Shops.....	675	445	.....	.....	.....
Shoemaking and Repair Shops.....	223	154	.....	.....	.....
Ship, Boat Building and Repair Works.....	954	388	.....	.....	.....
Marine Ways and Dry Docks.....	240	81	.....	.....	.....
Watchmaking and Repairing.....	114	83	.....	.....	.....
Plumbing, Tinning, Gas Fitting and Repairing.....	684	312	.....	.....	.....
Publishing, Printing and Job Work.....	1,935	650	.....	.....	.....
Automobile, Bicycle and Motorcycle Repairing.....	933	578	.....	.....	.....
Building and Repair Work.....	6,993	2,980	.....	.....	.....
Men's Tailoring and Repairing.....	350	224	.....	.....	.....
Canneries, Fruits and Vegetables.....	321	93	.....	.....	.....
Art Printing .....	91	60	.....	.....	.....
Woodwork and Repair Shops.....	170	140	.....	.....	.....
Crate and Basket Manufacture and Novelty Works.....	943	555	.....	.....	.....
Planing Mills, Sash, Doors and Blinds, combined.....	341	257	.....	.....	.....
Harness Manufacture and Shoe Repairing, combined.....	17	10	.....	.....	.....
Cigar Manufacture .....	16,024	8,632	.....	.....	.....
Preserves and Jelly Manufacture.....	24	6	.....	.....	.....
Dry Kilns and Stave Manufacture.....	160	42	.....	.....	.....
Lime Manufacturing Works.....	265	148	.....	.....	.....
Sponge Fishing and Packing.....	1,900	1,350	.....	.....	.....
Syrup Manufacture .....	1,407	1,278	.....	.....	.....
Packing Houses (fruit).....	2,162	320	.....	.....	.....
Wall Decorating .....	147	55	.....	.....	.....
Plumbing, Electric, Sheet Metal and Light Works.....	190	96	.....	.....	.....
Carriage and Wagon Manufacture and Repair.....	245	117	.....	.....	.....
Tile Manufacturing .....	57	29	.....	.....	.....
Locksmith and Gunsmith.....	13	7	.....	.....	.....

TABLE NO. 1.—GENERAL CLASSIFICATION OF ALL INDUSTRIES REPORTED IN STATE.—Continued.

NAME OF INDUSTRY.	Greatest Number Em- ployed at Any One Time During Year in This Industry.	Least Number Em- ployed at Any One Time During Year in This Industry.	Mines and Mining Products.		
			Character of Ores Mined.		
			Tons Kaolin.	Tons Fullers' Earth.	Tons Phosphate.
Fertilizer Manufacture .....	1,575	399	.....	.....	.....
Fish and Oyster Packing .....	1,561	536	.....	.....	.....
Crates and Cigar Box Factory .....	832	671	.....	.....	.....
Cabinet Work and Furniture Repairing .....	92	61	.....	.....	.....
Steam Fitting and Repairing .....	28	14	.....	.....	.....
Dye Works .....	6	3	.....	.....	.....
Engraving and Electrotyping .....	9	7	.....	.....	.....
Paint Manufacture .....	23	13	.....	.....	.....
Wood Distillation Works .....	40	20	.....	.....	.....
Turpentine Still Manufacture .....	15	6	.....	.....	.....
Cypress Lumber and Shingle Manufacture .....	400	250	.....	.....	.....
Palmetto Fibre Manufacture .....	66	10	.....	.....	.....
Scale and Fixture Manufacture and Repairing .....	11	11	.....	.....	.....
Spring Bed Manufacture .....	60	31	.....	.....	.....
Cross Tie Manufacture .....	68	14	.....	.....	.....
Cedar Manufacture .....	108	78	.....	.....	.....
Extracts and Chemical Manufacture .....	28	28	.....	.....	.....

Awning Manufacture .....	19	10	.....	.....
Hat Manufacture and Repairing .....	71	30	.....	.....
Tallow Manufacture .....	6	5	.....	.....
Storage .....	87	45	.....	.....
Blow Pipe Manufacture .....	14	12	.....	.....
Metal Stamps Manufacture .....	3	2	.....	.....
Upholstering .....	12	7	.....	.....
Gas Engine Manufacture .....	10	8	.....	.....
Screen Manufacture .....	28	13	.....	.....
Floral Decorating .....	48	31	.....	.....
Razor Hone Manufacture and Repairing .....	20	22	.....	.....
Sculpture and Plaster Work .....	4	4	.....	.....
Electrical Work and Repairing .....	137	63	.....	.....
Coffee Roasting .....	4	4	.....	★
Moving Picture Machinery Manufacture .....	5	3	.....	★
Boiler Making and Repairing .....	15	8	.....	.....
Composition Capital Manufacture .....	30	15	.....	.....
Window and Door Frame Manufacture .....	30	14	.....	.....
Sheet Metal Manufacture .....	92	38	.....	.....
Vulcanizing .....	13	10	.....	.....
Bag Manufacture .....	120	65	.....	.....
Vinegar Manufacture .....	8	8	.....	.....
Blue Point Manufacture .....	8	4	.....	.....
Mattress Manufacture .....	12	8	.....	.....
Yeast Manufacture .....	7	7	.....	.....
Cleaning, Pressing and Repairing .....	430	204	.....	.....
Marble Works .....	54	40	.....	.....
Chair Manufacture .....	19	10	.....	.....
Trunk Manufacture .....	20	10	.....	.....
Broom Manufacture .....	50	27	.....	.....
Miscellaneous Special Industries .....	3,544	2,085	.....	.....

TABLE NO. 1.—GENERAL CLASSIFICATION OF ALL INDUSTRIES REPORTED IN STATE—Continued.

NAME OF INDUSTRY.	Cost of Material and Value of Products.		Ginneries and Products.			
	Cost of Production and Material used (including Mill or Mine Supplies and Fuel.	Value of Work (including Custom Work and Repairing.)	Number of lbs of Lint of Upland Cotton Ginned at this Gin this Year.	Number of lbs of Lint Sea Island Cotton Ginned at this Gin this Year.	Number Bushels Upland Cotton Seed.	Number Bushels Sea Island Cotton Seed.
1 Saw Mills and Products.....	\$ 8,721,871	\$13,641,924	.....	.....	.....	.....
1 Naval Stores, Turpentine and Rosin.....	9,085,813	13,878,479	.....	.....	.....	.....
Glaneries and Products.....	258,300	424,081	15,350,350	12,089,613	942,287	130,894
Grist Mills and Products.....	62,291	105,261	.....	.....	.....	.....
Shingle Manufacture.....	390,550	765,650	.....	.....	.....	.....
Planing Mills, and Varied Products.....	652,125	1,189,000	.....	.....	.....	.....
Mining (Phosphate, Kaolin, Fullers Earth).....	6,821,510	10,359,007	.....	.....	.....	.....
Blacksmithing and Repair Works.....	493,180	841,883	.....	.....	.....	.....
Ice Manufacture, combined with Electric Light.....	1,204,978	2,008,111	.....	.....	.....	.....
Electric Light, Power, and Ice combined.....	544,625	1,108,300	.....	.....	.....	.....
Artificial Stone and Cement Manufacture.....	723,309	1,103,107	.....	.....	.....	.....
Brick Manufacture.....	546,000	722,800	.....	.....	.....	.....
Bakeries and Confectionery Products.....	906,071	1,432,179	.....	.....	.....	.....
Cooperage Works.....	35,725	61,500	.....	.....	.....	.....
General Repair Shops.....	40,572	75,890	.....	.....	.....	.....
Machine Shops and Repair Works.....	591,870	758,000	.....	.....	.....	.....
Millinery and Women's Tailoring.....	487,985	819,304	.....	.....	.....	.....

Novelty Works .....	144,213	205,028	.....	.....	.....	.....
Bottling Works, Beer and Soft Drinks Manufacture.	1,595,828	7,242,250	.....	.....	.....	.....
Iron, Brass, Foundry and Machine Shops, combined.	590,110	1,412,650	.....	.....	.....	.....
Irrigation and Water Pumping Plants.....	8,236	17,000	.....	.....	.....	.....
Laundry and Repair Shops.....	438,027	609,007	.....	.....	.....	.....
Shoemaking and Repair Shops.....	215,753	325,981	.....	.....	.....	.....
Ship, Boat Building and Repair Works.....	709,075	1,040,965	.....	.....	.....	.....
Marine Ways and Dry Docks.....	134,500	179,335	.....	.....	.....	.....
Watchmaking and Repairing.....	168,175	287,019	.....	.....	.....	.....
Plumbing, Tinning, Gas Fitting and Repairing.....	951,560	1,346,060	.....	.....	.....	.....
Publishing, Printing and Job Work.....	1,017,648	1,535,020	.....	.....	.....	.....
Automobile, Bicycle and Motorcycle Repairing.....	630,870	751,555	.....	.....	.....	.....
Building and Repair Work.....	5,299,584	8,230,825	.....	.....	.....	.....
Men's Tailoring and Repairing.....	321,502	617,450	.....	.....	.....	.....
Canneries, Fruits and Vegetables.....	50,053	103,132	.....	.....	.....	.....
Art Printing .....	165,200	247,050	.....	.....	.....	.....
Woodwork and Repair Shops.....	175,391	509,688	.....	.....	.....	.....
Crate and Basket Manufacture and Novelty Works...	701,850	889,030	.....	.....	.....	.....
Planing Mills, Sash, Doors and Blinds, combined .....	282,054	532,175	.....	.....	.....	.....
Harness Manufacture and Shoe Repairing, combined.	37,100	56,400	.....	.....	.....	.....
Cigar Manufacture .....	11,737,540	22,151,194	.....	.....	.....	.....
Preserves and Jelly Manufacture.....	1,700	3,150	.....	.....	.....	.....
Dry Kilns and Stave Manufacture.....	273,155	338,470	.....	.....	.....	.....
Lime Manufacturing Works.....	124,000	145,500	.....	.....	.....	.....
Sponge Fishing and Packing.....	605,000	800,000	.....	.....	.....	.....
Syrup Manufacture .....	40,000	65,000	.....	.....	.....	.....
Packing Houses (fruit).....	421,800	612,400	.....	.....	.....	.....
Wall Decorating .....	180,100	230,300	.....	.....	.....	.....
Plumbing, Electric, Sheet Metal and Light Works...	64,300	96,930	.....	.....	.....	.....
Carriage and Wagon Manufacture and Repair.....	240,540	359,050	.....	.....	.....	.....
Tile Manufacturing .....	60,500	129,000	.....	.....	.....	.....
Locksmith and Gunsmith.....	26,500	39,500	.....	.....	.....	.....

TABLE NO. 1.—GENERAL CLASSIFICATION OF ALL INDUSTRIES REPORTED IN STATE.—Continued.

NAME OF INDUSTRY.	Cost of Material and Value of Products.		Ginneries and Products.			
	Cost of Production and Material used (including Mill or Mine Supplies and Fuel.	Value of Work (including Custom Work and Repairing.)	Number of lbs of Lint of Upland Cotton Ginned at this Gln this Year.	Number of lbs of Lint Sea Island Cotton Ginned at this Gln this Year.	Number Bushels Upland Cotton Seed.	Number Bushels Sea Island Cotton Seed.
Fertilizer Manufacture .....	108,000	3,041,000	.....	.....	.....	.....
Fish and Oyster Packing .....	38,900	69,500	.....	.....	.....	.....
Crate and Cigar Box Factory .....	395,550	791,000	.....	.....	.....	.....
Cabinet Work and Furniture Repairing .....	72,300	96,290	.....	.....	.....	.....
Steam Fitting and Repairing .....	103,300	143,000	.....	.....	.....	.....
Dye Works .....	3,400	11,132	.....	.....	.....	.....
Engraving and Electrotyping .....	20,000	36,000	.....	.....	.....	.....
Paint Manufacture .....	60,000	95,000	.....	.....	.....	.....
Wood Distillation Works .....	12,000	30,000	.....	.....	.....	.....
Turpentine Still Manufacture .....	1,200	2,900	.....	.....	.....	.....
Cypress Lumber and Shingle Manufacture .....	149,866	243,975	.....	.....	.....	.....
Palmetto Fibre Manufacture .....	*	*	.....	.....	.....	.....
Scale and Fixture Manufacture and Repairing .....	*	*	.....	.....	.....	.....
Spring Bed Manufacture .....	87,000	116,000	.....	.....	.....	.....
Cross Tie Manufacture .....	8,450	16,085	.....	.....	.....	.....
Cedar Manufacture .....	60,890	116,800	.....	.....	.....	.....
Extracts and Chemical Manufacture .....	108,000	161,500	.....	.....	.....	.....

Awning Manufacture .....	52,000	70,000	.....	.....	.....	.....
Hat Manufacture and Repairing .....	17,500	25,750	.....	.....	.....	.....
Tallow Manufacture .....	7,000	9,022	.....	.....	.....	.....
Storage .....	91,200	138,151	.....	.....	.....	.....
Blow Pipe Manufacture .....	21,000	35,000	.....	.....	.....	.....
Metal Stamps Manufacture .....	3,700	4,500	.....	.....	.....	.....
Upholstering .....	39,000	58,000	.....	.....	.....	.....
Gas Engine Manufacture .....	*	*	.....	.....	.....	.....
Screen Manufacture .....	54,000	84,000	.....	.....	.....	.....
Floral Decorating .....	90,100	153,840	.....	.....	.....	.....
Razor Hone Manufacture and Repairing .....	23,575	34,810	.....	.....	.....	.....
Sculpture and Plaster Work .....	19,000	33,000	.....	.....	.....	.....
Electrical Work and Repairing .....	86,750	120,375	.....	.....	.....	.....
Coffee Roasting .....	14,000	18,000	.....	.....	.....	.....
Moving Picture Machinery Manufacture .....	13,000	20,000	.....	.....	.....	.....
Boiler Making and Repairing .....	12,000	16,000	.....	.....	.....	.....
Composition Capital Manufacture .....	55,650	83,440	.....	.....	.....	.....
Window and Door Frame Manufacture .....	56,000	70,000	.....	.....	.....	.....
Sheet Metal Manufacture .....	104,025	203,050	.....	.....	.....	.....
Vulcanizing .....	41,650	57,820	.....	.....	.....	.....
Bag Manufacture .....	130,000	160,000	.....	.....	.....	.....
Vinegar Manufacture .....	10,000	16,000	.....	.....	.....	.....
Blue Point Manufacture .....	8,000	11,500	.....	.....	.....	.....
Mattress Manufacture .....	23,000	30,000	.....	.....	.....	.....
Yeast Manufacture .....	12,000	20,000	.....	.....	.....	.....
Cleaning, Pressing and Repairing .....	275,210	392,160	.....	.....	.....	.....
Marble Works .....	173,000	240,700	.....	.....	.....	.....
Chair Manufacture .....	75,000	100,000	.....	.....	.....	.....
Trunk Manufacture .....	24,000	48,000	.....	.....	.....	.....
Broom Manufacture .....	150,000	105,000	.....	.....	.....	.....
Miscellaneous Special Industries .....	1,997,318	3,151,834	.....	.....	.....	.....

\*—Information refused.

TABLE No. 2.—*Manufactures by Counties, Number of Establishments, Capital Invested, Average Number of Wage Earners and Total Wages Paid.* •

COUNTIES.	Number of Establishments Reporting.	Capital Invested (Including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
Total for State .....	5,091	\$74,824,800	83,898	\$41,795,139
Alachua .....	160	1,439,225	2,140	854,433
Baker .....	48	87,450	365	80,890
Bradford .....	82	582,275	886	331,130
Brevard .....	40	303,350	347	183,702
Calhoun .....	27	736,880	697	169,450
Cltrus .....	30	5,806,275	2,305	770,909
Clay .....	28	689,500	1,272	256,150
Columbia .....	81	584,000	826	309,295
Dade .....	147	773,900	1,357	380,791
DeSoto .....	33	389,150	659	247,538
Duval .....	1,093	11,155,495	13,830	10,100,208
Escambia .....	57	606,805	637	251,240
Franklin .....	48	1,504,100	1,633	517,040
Gadsden .....	38	345,400	475	148,126
Hamilton .....	53	688,025	764	259,140
Hernando .....	21	1,477,350	1,424	665,450
Hillsborough .....	542	11,273,510	15,081	11,625,645
Holmes .....	33	292,760	589	316,140
Jackson .....	158	492,415	979	215,783
Jefferson .....	388	567,780	1,998	198,427
LaFayette .....	27	407,000	333	130,850
Lake .....	22	173,200	207	80,185
Lee .....	64	378,050	620	106,750
Leon .....	33	200,550	439	107,500
Levy .....	60	1,197,487	1,494	661,535
Liberty .....	37	926,850	1,782	588,729
Madison .....	100	1,534,955	2,094	371,599
Manatee .....	20	85,950	159	65,858
Marion .....	69	1,997,300	3,862	486,346
Monroe .....	154	1,330,880	1,544	947,952
Nassau .....	39	292,000	414	135,150
Orange .....	116	2,400,150	2,334	1,020,579
*Osceola .....				
Palm Beach .....	108	426,225	824	374,415
Pasco .....	123	1,384,392	1,255	477,091
Pinellas .....	70	1,040,100	2,014	842,564
Polk .....	68	7,043,553	3,299	3,050,605

\*Not Reported.



TABLE NO. 2—Continued.—Manufactures by Counties. Number of Establishments, Capital Invested, Average Number of Wage Earners and Total Wages Paid.

COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
Putnam .....	51	2,150,266	1,533	537,695
Santa Rosa .....	178	4,023,490	3,026	997,685
St. Johns .....	169	1,986,153	2,499	535,306
St. Lucie .....	12	100,850	55	21,405
*Sumter .....				
*Suwannee .....				
*Taylor .....				
Volusia .....	298	1,945,510	1,976	922,850
Wakulla .....	23	520,423	561	177,550
Walton .....	80	1,149,987	1,603	594,460
Washington .....	65	1,383,800	1,078	520,087

\*Not Reported.

TABLE NO. 3—Average Number of Wage Earners of Specified Ages, Wages Paid and Greatest and Smallest Number Employed.

COUNTIES.	Men 16 Years and Over.		Womer 16 Years and Over.	
	Average Number.	Wages.	Average Number.	Wages.
Total for State .....	77,320	\$39,604,021	4,398	\$ 1,864,211
Alachua .....	2,140	854,433	.....	.....
Baker .....	305	80,890	.....	.....
Bradford .....	880	330,530	.....	.....
Brevard .....	347	183,702	.....	.....
Calhoun .....	653	163,476	15	1,304
Citrus .....	2,272	768,319	27	290
Clay .....	1,272	256,150	.....	.....
Columbia .....	795	801,115	11	1,170
Dade .....	1,290	370,403	60	10,280
DeSoto .....	650	247,538	.....	.....
Duval .....	12,565	9,751,323	773	431,230
Escambia .....	633	256,234	1	468
Franklin .....	1,693	517,040	.....	.....
Gadsden .....	475	148,126	.....	.....
Hamilton .....	725	257,105	6	1,600
Hernando .....	1,424	665,450	.....	.....
Hillsborough .....	12,701	10,408,357	2,259	1,201,892
Holmes .....	589	316,140	.....	.....
Jackson .....	970	215,783	.....	.....
Jefferson .....	1,098	198,427	.....	.....
LaFayette .....	348	137,850	.....	.....
Lake .....	196	77,810	7	1,475
Lee .....	620	166,750	.....	.....
Leon .....	439	107,800	.....	.....
Levy .....	1,239	583,846	79	21,339
Liberty .....	1,756	584,609	.....	.....
Madison .....	2,094	371,599	.....	.....
Manatee .....	158	65,658	.....	.....
Marion .....	2,045	334,909	810	30,400
Monroe .....	1,321	875,471	221	73,273
Nassau .....	414	133,150	.....	.....
Orange .....	2,295	1,015,288	17	38,840
*Osceola .....	.....	.....	.....	.....
Palm Beach .....	808	368,195	16	6,260
Pasco .....	1,255	477,091	.....	.....
Pinellas .....	2,014	842,564	.....	.....
Polk .....	3,209	3,050,605	.....	.....

\*Not Reported.

TABLE NO. 3—Continued.—Average Number of Wage Earners of Specified Ages, Wages Paid and Greatest and Smallest Number Employed.

COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.	
	Average Number	Wages.	Average Number	Wages.
Putnam .....	1,400	530,800	5	350
Santa Rosa .....	3,010	993,335	4	1,350
St. Johns .....	2,475	533,208	14	850
St. Lucie .....	55	21,405		
*Sumter .....				
*Suwannee .....				
*Taylor .....				
Volusia .....	1,883	829,896	73	26,850
Wakulla .....	405	168,340		
Walton .....	1,583	592,960		
Washington .....	1,676	519,937		

\*Not Reported.

TABLE NO. 3—Continued.—Average Number of Wage Earners of Specified Ages, Wages Paid and Greatest and Smallest Number Employed.

COUNTIES.	Children Under 16 Years		Greatest Number Employed at Any One Time During Year in This Industry.	Least Number Employed at Any One Time During Year in This Industry.
	Average Number.	Wages.		
Total for State .....	2,005	\$180,819	105,910	61,704
Alachua .....			2,214	1,834
Baker .....			457	300
Bradford .....	6	600	1,109	683
Brevard .....	41	4,670	846	225
Calhoun .....	6	2,000	2,630	1,607
Citrus .....			1,485	887
Clay .....	20	7,010	1,035	636
Columbia .....	7	108	2,110	684
Dade .....			814	517
DeSoto .....	502	7,600	19,080	9,651
Duval .....	3	638	804	430
Escambia .....			2,453	1,255
Franklin .....			605	317
Hamilton .....	6	435	806	641
Hernando .....			1,835	1,184
Hillsborough .....	41	10,208	18,677	11,080
Holmes .....			714	494
Jackson .....			1,069	543
Jefferson .....			2,063	1,784
LaFayette .....	5	1,500	400	308
Lake .....	4	900	247	133
Lee .....			833	304
Leon .....			648	310
Levy .....	126	55,350	1,066	1,092
Liberty .....	24	1,450	3,240	1,438
Madison .....			2,506	1,406
Manatee .....	26	4,120	2,072	1,555
Marion .....	1	200	176	112
Monroe .....	1,007	70,937	4,670	3,038
Nassau .....	1	208	2,386	1,328
Orange .....			591	248
*Osceola .....				
Palm Beach .....			1,315	455
Pasco .....			1,575	748
Pinellas .....			2,464	1,647
Polk .....			3,675	2,614
Putnam .....	68	6,445	1,888	1,132

\*Not Reported.

TABLE NO. 3—Continued.—Average Number of Wage Earners of Specified Ages, Wages Paid and Greatest and Smallest Number Employed.

COUNTIES.	Children Under 16 Years		Greatest Number Em- ployed at Any One Time During Year in This Industry.	Least Number Em- ployed at Any One Time During Year in This Industry.
	Average Number	Wages.		
Santa Rosa .....	12	3,000	4,028	2,232
St. Johns .....	10	1,250	2,632	1,546
St. Lucie .....			68	18
*Sumter .....				
*Suwannee .....				
*Taylor .....				
Volusia .....	2	240	2,610	1,366
Wakulla .....	155	9,210	676	377
Walton .....	20	1,500	1,838	1,238
Washington .....	2	150	2,054	1,167

\*Not Reported.

TABLE NO. 3—Continued.—Mines and Mining, Cost of Material and Value of Products.

COUNTIES.	Character of Ores Mined.			Cost of Production and Material used (including Mill or Mine Supplies and Fuel.	Value of Work (including Custom Work and Repairing.)
	Tons Kaolin.	Tons Fullers' Earth.	Tons Phosphate.		
Total for State ..	18,600	9,120	2,873,855	\$63,817,169	\$119,449,411
Total for State ..	.....	.....	432,000	2,500,450	5,708,255
Alachua .....	.....	.....	.....	89,860	303,450
Baker .....	.....	.....	.....	523,640	747,544
Bradford .....	.....	.....	.....	244,404	333,750
Brevard .....	.....	.....	.....	427,350	606,290
Calhoun .....	.....	.....	369,755	1,201,252	2,104,538
Citrus .....	.....	.....	.....	621,700	967,700
Clay .....	.....	.....	175,000	91,550	755,050
Columbia .....	.....	.....	.....	*	*
Dade .....	.....	.....	.....	158,550	473,960
DeSoto .....	.....	.....	.....	19,686,925	28,222,578
Duval .....	.....	.....	.....	462,845	743,239
Escambia .....	.....	.....	.....	*	*
Franklin .....	.....	9,120	.....	98,197	322,373
Gadsden .....	.....	.....	.....	398,968	612,376
Hamilton .....	.....	.....	.....	707,300	1,421,500
Hernando .....	.....	.....	249,600	15,544,185	38,280,331
Hillsborough .....	.....	.....	.....	450,260	662,900
Holmes .....	.....	.....	.....	*	*
Jackson .....	.....	.....	.....	*	*
Jefferson .....	.....	.....	.....	179,100	695,860
LaFayette .....	.....	.....	.....	146,865	221,100
Lake .....	.....	.....	.....	460,275	699,770
Lee .....	.....	.....	.....	†	†
Leon .....	.....	.....	.....	332,131	573,525
Levy .....	.....	.....	.....	376,338	1,229,823
Liberty .....	.....	.....	.....	223,199	313,452
Madison .....	.....	.....	.....	38,435	111,080
Manatee .....	.....	.....	157,500	2,881,619	4,666,373
Marion .....	.....	.....	.....	2,208,353	3,724,611
Monroe .....	.....	.....	.....	103,700	366,650
Nassau .....	.....	.....	.....	1,767,540	2,498,000
Orange .....	.....	.....	.....	.....	.....
*Osceola .....	.....	.....	.....	*	*
Palm Beach .....	.....	.....	.....	*	*
Pasco .....	.....	.....	.....	1,115,755	1,657,300
Pinellas .....	.....	.....	1,495,000	2,092,080	8,372,605

\*Not Reported

TABLE NO. 3—Continued.—*Mines and Mining, Cost of Material and Value of Products.*

COUNTIES.	Character of Ores Mined.			Cost of Production and Material used (including Mill or Mine Supplies and Fuel.	Value of Work (including Custom Work and Repairing.)
	Tons Kaolin.	Tons Fullers' Earth.	Tons Phosphate.		
Polk .....	18,600	.....	.....	1,023,458	1,453,736
Putnam .....	.....	.....	.....	3,536,727	4,337,013
Santa Rosa .....	.....	.....	.....	*	*
St. Johns .....	.....	.....	.....	34,600	69,650
St. Lucie .....	.....	.....	.....	.....	.....
*Sumter .....	.....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	1,338,435	2,781,620
Volusia .....	.....	.....	.....	178,450	262,750
Wakulla .....	.....	.....	.....	930,220	1,696,250
Walton .....	.....	.....	.....	756,450	1,292,353
Washington .....	.....	.....	.....	.....	.....

\*Not Reported

TABLE NO. 4—GINNERIES AND PRODUCTS, 1911-1912.

COUNTIES.	Number of lbs of Lint of Upland Cotton Ginned at this Gin this Year.	Number of lbs of Lint Sea Island Cotton Ginned at this Gin this Year.	Number Bushels Upland Cotton Seed.	Number Bushels Sea Island Cotton Seed.
Total for State.	7,873,350	12,085,513	493,127	1,183,804
Alachua .....		2,524,203		236,644
Baker .....		470,000		20,396
Bradford .....		1,862,090		97,441
Brevard .....				
Calhoun .....	219,000		15,330	
Citrus .....				
Clay .....				
Columbia .....		370,000		34,000
Dade .....				
DeSoto .....				
Duval .....				
Escambia .....	590,000		35,750	
Franklin .....				
Gadsden .....	712,500	40,800	41,780	2,688
Hamilton .....		1,639,200		67,900
Hernando .....				
Hillsborough .....				
Holmes .....	30,000		1,800	
Jackson .....				
Jefferson .....	2,970,000	460,000	168,500	146,000
LaFayette .....		51,000		30,720
Lake .....				
Lee .....				
Leon .....				
Levy .....				
Liberty .....	55,000		5,155	
Madison .....	253,990	4,502,020	63,245	533,257
Manatee .....				
Marion .....	16,000	185,000	345	13,000
Monroe .....				
Nassau .....				
Orange .....				
*Osceola .....				
Palm Beach .....				
Pasco .....				
Pineellas .....				
Polk .....				
Pontnam .....		30,600		1,848
Santa Rosa .....	1,957,060		95,461	

\*Not Reported.



TABLE NO. 4—Continued.—Ginneries and Products, 1911-1912.

COUNTIES.	Number of lbs of Lint of Upland Cotton Gin- ned at this Gin this Year.	Number of lbs of Lint Sea Island Cotton Gin- ned at this Gin this Year.	Number Bushels Up- land Cotton Seed.	Number Bushels Sea Island Cotton Seed.
St. Johns .....	.....	.....	.....	.....
St. Lucie .....	.....	.....	.....	.....
*Sumter .....	.....	.....	.....	.....
*Suwannee .....	.....	.....	.....	.....
*Taylor .....	.....	.....	.....	.....
Volusia .....	.....	.....	.....	.....
Wakulla .....	500	.....	225	.....
Walton .....	163,500	.....	10,064	.....
Washington .....	905,800	.....	55,472	.....

\*Not Reported.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ALACHUA—				
Total County .....	160	\$ 1,439,225	2,140	\$ 854,433
Saw mill products.....	16	126,750	216	78,971
Naval stores, turpentine and rosin .....	21	477,500	718	219,145
Oilseeds and products.....	19	96,900	137	23,260
Orist mill products.....	11	8,100	37	2,862
Blacksmithing and repair work.....	18	9,100	32	13,734
Mining (Phosphate) .....	10	166,000	490	323,800
Ice manufacture .....	4	163,000	49	26,420
Irrigation works .....	22	133,600	110	29,150
Bottling works and soft drink manufacture .....	6	21,500	25	8,690

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ALACHUA.—Continued.				
Shingle manufacture .....	1	3,000	30	10,800
Shoe shops and repair work.....	8	600	8	2,700
Foundry and machine shops.....	4	30,500	45	29,988
Tailoring and repair shops.....	8	850	8	2,744
Cabinet works .....	1	25,000	40	18,400
Wood work and repair shop.....	3	1,200	4	2,414
Brick works .....	1	22,000	20	7,920
Crate manufacture and novelty works .....	3	142,000	155	47,400
Garage and bicycle repair shops.....	2	1,700	3	2,015
Laundry works .....	2	10,125	13	4,020

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ALACHUA.—Continued.								
Total County .....	2,140	\$ 854,433	...	\$ .....	...	...	2,214	1,834
Saw mill products .....	216	78,971	...	...	...	...	216	208
Naval stores, turpentine and rosin .....	718	219,145	...	...	...	...	728	618
Ginneries and products .....	137	23,260	...	...	...	...	170	115
Grist mill products .....	37	2,862	...	...	...	...	38	26
Blacksmithing and repair work .....	32	13,734	...	...	...	...	32	32
Mining (Phosphate) .....	490	323,800	...	...	...	...	510	400
Ice manufacture .....	49	26,420	...	...	...	...	49	49
Irrigation works .....	110	29,150	...	...	...	...	115	49
Bottling orks and soft drinks manufacture ..	25	8,690	...	...	...	...	25	25

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ALACHUA.—Continued.								
Shingle manufacture .....	30	10,800	...	.....	...	.....	30	30
Shoe shop and repair work.....	8	2,700	...	.....	...	.....	8	8
Foundry and machine shop.....	45	29,988	...	.....	...	.....	45	45
Tailoring and repair shop.....	8	2,744	...	.....	...	.....	8	8
Cabinet works .....	40	18,400	...	.....	...	.....	40	30
Wood work and repair shops.....	4	2,414	...	.....	...	.....	4	4
Brick works .....	20	7,920	...	.....	...	.....	25	16
Crate manufacture and novelty works .....	155	47,400	...	.....	...	.....	155	155
Garage and bicycle repair shops.....	3	2,015	...	.....	...	.....	3	3
Laundry works .....	13	4,020	...	.....	...	.....	13	13

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
ALACHUA.—Continued.							
Total County .....	432,000	\$ 2,500,450	\$ 5,708,255	.....	2,524,203	.....	236,644
Saw mill products.....		50,500	168,300	.....			
Naval stores, turpentine and rosin .....		341,000	547,600	.....			
Ginneries and products.....				.....	2,524,203	.....	236,644
Grist mill products .....		10,000	21,500	.....			
Blacksmithing and repair work..		38,700	61,250	.....			
Mining (Phosphate) .....	432,000	1,728,000	4,320,000	.....			
Ice manufacture .....		151,000	287,250	.....			
Irrigation works .....				.....			
Bottling works and soft drinks manufacture .....		12,500	37,250	.....			

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea- Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea- Island Cotton Seed.
ALACHUA.—Continued.							
Shingle manufacture .....	.....	17,350	39,700	.....	.....	.....	.....
Shoe shop and repair work.....	.....	750	5,500	.....	.....	.....	.....
Foundry and machine shops.....	.....	35,600	49,750	.....	.....	.....	.....
Tailoring and repair shops.....	.....	3,450	5,100	.....	.....	.....	.....
Cabinet works .....	.....	26,800	31,250	.....	.....	.....	.....
Wood work and repair shops.....	.....	5,150	9,275	.....	.....	.....	.....
Brick works .....	.....	11,800	15,250	.....	.....	.....	.....
Crate manufacture and novelty works .....	.....	58,850	91,280	.....	.....	.....	.....
Garage and bicycle repair shops..	.....	3,000	5,000	.....	.....	.....	.....
Laundry works .....	.....	6,000	10,000	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
BAKER—				
Total for County.....	48	\$ 87,450	365	\$ 80,890
Saw Mill Products.....	8	\$ 23,800	68	\$ 12,600
Turpentine and Resin, Naval Stores.....	6	31,500	217	54,400
Ginneries and Products.....	6	15,500	37	3,910
Grist Mill Products.....	8	5,375	14	1,255
Blacksmithing and Repair Work.....	13	9,800	20	6,950
Cooperage Works.....	6	475	6	1,325
Shingle Manufacture .....	1	1,000	3	450



TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
BAKER—Continued.								
Total for County.....	365	\$ 80,890	...	\$ .....	...	\$ .....	457	300
Saw Mill Products.....	68	12,600	...	\$ .....	...	\$ .....	75	60
Turpentine and Resin, Naval Stor.....	217	54,400	...	.....	...	.....	297	164
Ginneries and Products.....	87	3,910	...	.....	...	.....	42	33
Grist Mill Products.....	14	1,255	...	.....	...	.....	14	14
Blacksmithing and Repair Work.....	20	6,950	...	.....	...	.....	20	20
Cooperage Works .....	6	1,325	...	.....	...	.....	6	6
Shingle Manufacture .....	3	450	...	.....	...	.....	3	3

TABLE NO. 5—SPECIFIED IN MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mineral Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (Including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
BAKER—Continued.							
Total for County.....		\$ 80,860	\$ 303,450	.....	470,000	.....	20,396
Saw Mill Products.....		\$ 13,700	\$ 125,900	.....	.....	.....	.....
Turpentine & Resin. Naval Stores.....		53,700	113,500	.....	.....	.....	.....
Ginneries and Products.....		7,500	27,800	.....	470,000	.....	20,396
Orist Mill Products.....		585	2,050	.....	.....	.....	.....
Blacksmithing and Repair Work.....		11,850	26,900	.....	.....	.....	.....
Cooperage Works.....		1,025	4,300	.....	.....	.....	.....
Shingle Manufacture.....		900	3,000	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
BRADFORD—				
Total County .....	82	\$ 582,275	886	\$ 331,130
Saw mill and products.....	10	76,500	148	58,700
Naval stores, turpentine and rosin.....	17	377,000	482	195,380
Ginneries and products .....	13	39,500	97	8,920
Grist mills and products.....	9	4,575	13	1,550
Blacksmithing and repair work.....	19	10,600	27	12,540
Shingle manufacture .....	4	7,500	42	12,400
Veneering and planing mills.....	2	69,250	62	28,090
Artificial stone manufacture.....	1	1,000	5	1,050
Machine shops .....	1	3,500	1	900
Contracting and building repair shops .....	6	1,850	19	11,600

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
BRADFORD.—Continued.								
Total County .....	880	330,530	...	...	6	\$ 600	1,109	683
Saw mill and products.....	148	58,700	...	...	...	...	179	121
Naval stores, turpentine and rosin.....	482	195,380	...	...	...	...	618	373
Ginneries and products .....	91	8,320	...	...	6	600	115	71
Grist mills and products.....	13	1,550	...	...	...	...	13	13
Blacksmithing and repair work.....	27	12,540	...	...	...	...	35	22
Shingle manufacture .....	42	12,400	...	...	...	...	53	28
Veneering and planing mills.....	52	28,090	...	...	...	...	62	36
Artificial stone manufacture.....	5	1,050	...	...	...	...	7	3
Machine shops .....	1	900	...	...	...	...	2	1
Contracting and building repair shops.....	19	11,600	...	...	...	...	25	15

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mine Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
BRADFORD.—Continued.							
Total County .....	.....	523,640	747,544	.....	1,862,090	.....	97,441
Saw mill and products.....	.....	95,800	123,510	.....	.....	.....	.....
Naval stores, turpentine and rosin .....	.....	310,600	459,000	.....	.....	.....	.....
Ginneries and products .....	.....	17,815	34,384	.....	1,862,190	.....	97,441
Grist mills and products.....	.....	1,975	3,350	.....	.....	.....	.....
Blacksmithing and repair work..	.....	18,750	28,700	.....	.....	.....	.....
Shingle manufacture .....	.....	19,800	25,700	.....	.....	.....	.....
Veneering and planing mills.....	.....	36,100	39,500	.....	.....	.....	.....
Artificial stone manufacture.....	.....	3,500	6,000	.....	.....	.....	.....
Machine shops .....	.....	1,500	2,500	.....	.....	.....	.....
Contracting and building repair shops .....	.....	17,800	24,900	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
BREVARD—				
Total County .....	40	\$ 303,350	347	\$ 183,702
Saw mills and products.....	5	8,300	16	3,800
Naval stores, turpentine and resin .....	3	190,000	210	96,000
Blacksmithing and repair work.....	3	3,700	6	3,900
Contracting and building repair work .....	5	8,000	34	31,500
Boat building and repair work.....	5	16,800	11	7,300

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
BREVARD—Continued.								
Total County .....	347	\$ 183,702	...	\$ .....	...	\$ .....	486	225
Saw mills and products.....	210	96,000	...	...	...	...	23	7
Naval stores, turpentine and resin.....	6	3,900	...	...	...	...	25	150
Blacksmithing and repair work.....	34	31,900	...	...	...	...	7	3
Contracting and building repair work .....	16	3,800	...	...	...	...	62	17
Boat building and repair work.....	11	7,300	...	...	...	...	24	6

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea- Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea- Island Cotton Seed
BREVARD—Continued.							
Total County .....	.....	\$ 244,404	\$ 383,750	.....	.....	.....	.....
Saw mills and products.....	.....	6,100	17,300	.....	.....	.....	.....
Naval stores, turpentine and resin .....	.....	102,000	161,250	.....	.....	.....	.....
Blacksmithing and repair work..	.....	4,800	9,600	.....	.....	.....	.....
Contracting and building repair work .....	.....	50,500	64,450	.....	.....	.....	.....
Boat building and repair work..	.....	8,500	17,500	.....	.....	.....	.....



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
BREVARD—Continued.				
Marine ways and dry docks.....	2	\$ 21,000	11	\$ 7,700
Machine and repair shops.....	3	4,800	5	1,200
Ice manufacture .....	3	34,000	18	11,700
Artificial stone and cement works.....	2	3,000	6	5,250
Cooperage and wood repair shops.....	3	2,800	5	2,092
Bakeries and products.....	1	1,000	1	600
Planing mills and novelty works.....	2	6,000	17	6,260
Bicycle repair shops.....	1	2,500	2	2,000
Plumbing and repair shops.....	2	1,450	5	4,000

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
BREVARD—Continued.								
Marine ways and dry docks.....	11	\$ 7,700	...	\$	...	\$	13	5
Machine and repair shops.....	5	1,200	...	...	...	...	8	3
Ice manufacture .....	18	11,700	...	...	...	...	25	12
Artificial stone and cement works.....	6	5,250	...	...	...	...	7	3
Cooperage and wood repair shops.....	5	2,092	...	...	...	...	6	1
Bakeries and products.....	1	600	...	...	...	...	2	1
Planing mills and novelty works.....	17	6,260	...	...	...	...	24	11
Bicycle repair shops.....	2	2,000	...	...	...	...	12	1
Plumbing and repair shops.....	5	4,000	...	...	...	...	9	2

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
BREVARD—Continued.							
Marine ways and dry docks.....	.....%	5,200	\$ 10,800	.....	.....	.....	.....
Machine and repair shops.....	.....	3,600	6,500	.....	.....	.....	.....
Ice manufacture .....	.....	33,800	45,200	.....	.....	.....	.....
Artificial stone and cement works .....	.....	7,250	10,450	.....	.....	.....	.....
Cooperage and wood repair shops .....	.....	2,700	4,500	.....	.....	.....	.....
Bakeries and products.....	.....	650	900	.....	.....	.....	.....
Planing mills and novelty works .....	.....	13,304	18,800	.....	.....	.....	.....
Bicycle repair shops .....	.....	4,000	7,000	.....	.....	.....	.....
Plumbing and repair shops.....	.....	2,000	6,500	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
CALHOUN—				
Total County .....	27	736,880	697	162,450
Saw mills and products.....	2	7,000	13	3,000
Naval stores, turpentine and rosin.....	17	716,200	670	164,000
Grist mills and products.....	4	3,420	4	675
Ginneries and products.....	3	5,260	7	435
Brick works .....	1	5,000	3	1,310

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
CALHOUN.—Continued.								
Total County .....	653	163,476	15	1,304	41	\$4,670	842	540
Saw mills and products.....	13	3,000	...	...	...	...	19	6
Naval stores, turpentine and rosin.....	626	158,026	15	1,304	41	4,670	798	523
Grist mills and products.....	4	675	...	...	...	...	4	4
Ginneries and products .....	7	435	...	...	...	...	9	3
Brick works .....	3	1,340	...	...	...	...	12	2

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
CALHOUN.—Continued:							
Total County .....	.....	427,350	606,290	219,000	.....	15,330	.....
Saw mills and products.....	.....	4,500	6,500	.....	.....	.....	.....
Naval stores, turpentine and rosin .....	.....	264,000	400,290	.....	.....	.....	.....
Grist mills and products.....	.....	875	2,000	.....	.....	.....	.....
Ginneries and products .....	.....	475	1,000	219,000	.....	15,330	.....
Brick works .....	.....	157,500	187,500	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including land, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
CITRUS—				
Total County .....	30	\$ 5,806,275	2,305	770,609
Saw mills and products.....	1	450,000	130	60,235
Naval stores, turpentine and rosin.....	5	470,000	486	70,459
Blacksmithing and repair work.....	3	7,000	4	3,150
Ice manufacture .....	2	28,000	10	5,237
Canning factories .....	2	150	6	552
Crate manufacture and novelty works .....	2	202,000	137	46,781
Bottling works and soft drinks manufacture .....	1	1,623	2	195
Cabinet shops .....	1	500	1	250
Mining (Phosphates) .....	13	4,647,000	1,529	583,750

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
CITRUS.—Continued.								
Total County .....	2,272	768,319	27	290	6	2,000	2,630	1,607
Saw mills and products.....	130	60,235	...	...	...	...	150	120
Naval stores, turpentine and rosin.....	480	68,459	...	...	6	2,000	572	365
Blacksmithing and repair work.....	4	3,150	...	...	...	...	7	3
Ice manufacture .....	10	5,237	...	...	...	...	17	7
Canning factories .....	4	477	2	75	...	...	7	4
Crate manufacture and novelty works .....	112	46,566	25	215	...	...	160	115
Bottling works and soft drinks manufacture ..	2	195	...	...	...	...	5	2
Cabinet shops .....	1	250	...	...	...	...	2	1
Mining (Phosphates) .....	1,529	583,750	...	...	...	...	1,710	990



TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair. Ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed
CITRUS.—Continued.							
Total County .....	369,755	1,201,252	2,164,533	.....	.....	.....	.....
Saw mills and products.....	.....	120,000	160,000	.....	.....	.....	.....
Naval stores, turpentine and rosin .....	.....	263,000	331,000	.....	.....	.....	.....
Blacksmithing and repair work..	.....	1,840	4,500	.....	.....	.....	.....
Ice manufacture .....	.....	11,752	14,826	.....	.....	.....	.....
Canning factories .....	.....	50	450	.....	.....	.....	.....
Crate manufacture and novelty works .....	.....	126,000	152,750	.....	.....	.....	.....
Bottling works and soft drinks manufacture .....	.....	300	900	.....	.....	.....	.....
Cabinet shops .....	.....	350	850	.....	.....	.....	.....
Mining (Phosphate) .....	369,755	677,960	1,499,257	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
CLAY—				
Total County .....	28	\$ 639,500	1,272	\$ 256,150
Saw mill and products.....	8	426,000	640	86,000
Naval stores, turpentine and resin.....	15	192,100	576	144,850
Cooperage and repair shops.....	2	2,500	3	800
Brick works .....	2	6,900	45	17,500
Ice manufacture .....	1	12,000	8	7,000

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
CLAY—Continued.								
Total County .....	1,272	\$ 256,150	...	\$ .....	...	\$ .....	1,485	887
Saw mills and products .....	640	86,000	...	...	...	...	695	456
Naval stores, turpentine and resin .....	576	144,850	...	...	...	...	731	396
Cooperage and repair shops .....	3	8,000	...	...	...	...	4	2
Brick works .....	45	17,500	...	...	...	...	45	28
Ice manufacture .....	8	7,000	...	...	...	...	10	5

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
CLAY—Continued.							
Total County .....		\$ 621,700	\$ 967,700				
Saw mills and products.....		179,600	265,400				
Naval stores, turpentine and resin .....		363,000	541,800				
Cooperage repair shops.....		1,100	2,200				
Brick works .....		75,000	108,300				
Ice manufacture .....		3,000	50,000				

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
COLUMBIA— Total County .....	81	\$ 584,000	826	\$ 309,295
Saw mills and products.....	10	110,500	392	170,670
Naval stores, turpentine and resin.....	5	60,000	113	30,500
Ginneries and products.....	8	16,200	52	4,150
Grist mills and products.....	8	6,500	19	2,400
Blacksmithing and repair shops.....	15	4,425	23	9,100
Planing mills and manufacturing works .....	4	51,100	109	15,700
Ice manufacture .....	2	40,000	16	5,000
Tailoring and repair shops.....	6	375	9	2,200
Millinery and women repair shops.....	4	6,700	9	2,800
Machinery and repair works.....	1	5,000	4	2,400

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (in- cluding lands, build- ings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
COLUMBIA—Continued.				
Jewelry and repairing.....	2	\$ 5,000	3	\$ 2,400
Bakery .....	1	1,500	3	2,500
Cigar manufacture .....	1	1,000	2	1,000
Auto repair shops.....	2	15,250	7	5,000
Harness manufacture and shoe shop.....	2	450	2	775
Plumbing and repair work.....	2	500	5	3,000
Bottling works .....	1	3,000	10	3,000
Mining phosphates .....	1	250,000	300	11,000
Canning factories .....	1	1,500	4	400
Contract and repair work.....	5	5,000	14	5,000

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
COLUMBIA—Continued.								
Total County .....	795	\$ 301,115	11	\$ 1,170	20	\$7,010	1,035	636
Saw mills and products.....	381	165,010	...	.....	11	5,660	461	326
Naval stores, turpentine and resin.....	111	30,300	...	.....	2	200	145	72
Ginneries and products.....	41	3,530	9	770	2	150	66	34
Grist mills and products.....	17	2,000	2	400	...	.....	22	15
Blacksmithing and repair shops.....	23	9,100	...	.....	...	.....	30	17
Planing mills and manufacturing works.....	109	45,700	...	.....	...	.....	160	97
Ice manufacture .....	16	5,000	...	.....	...	.....	16	12
Tailoring and repair shops.....	9	2,200	...	.....	...	.....	10	6
Millinery and women repair shops.....	9	2,800	...	.....	...	.....	12	6
Machinery and repair works.....	4	2,400	...	.....	...	.....	6	3

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
COLUMBIA—Continued.								
Jewelry and repairing.....	3	\$ 2,400	...	\$	...	\$	3	3
Bakery .....	3	2,500	...	...	...	...	4	2
Cigar manufacture .....	2	1,000	...	...	...	...	3	1
Auto repair shops.....	7	5,000	...	...	...	...	10	5
Harness manufacture and shoe shop.....	2	775	...	...	...	...	2	2
Plumbing and repair work.....	5	3,000	...	...	...	...	7	4
Bottling works .....	10	3,000	...	...	...	...	12	8
Mining phosphates .....	25	10,000	...	...	5	1,000	32	15
Canning factories .....	4	400	...	...	...	...	5	2
Contract and repair work.....	14	5,000	...	...	...	...	29	6



TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
COLUMBIA—Continued.							
Total County .....	175,000	\$ 91,550	\$ 755,050	.....	320,000	.....	34,000
Saw mills and products.....		25,100	204,100	.....	.....	.....	.....
Naval stores, turpentine and resin .....		19,800	61,000	.....	.....	.....	.....
Ginneries and products.....		3,350	34,000	.....	320,000	.....	34,000
Grist mills and products.....		850	4,350	.....	.....	.....	.....
Blacksmithing and repair shops. ....		3,200	18,400	.....	.....	.....	.....
Planing mills and manufacturing works .....		2,250	46,200	.....	.....	.....	.....
Ice manufacture .....		400	10,000	.....	.....	.....	.....
Tailoring and repair shops.....		1,100	4,200	.....	.....	.....	.....
Millinery and women repair shops .....		4,700	16,500	.....	.....	.....	.....
Machinery and repair works....		3,800	10,000	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
COLUMBIA—Continued.							
Jewelry and repairing.....		\$ 750	\$ 3,000				
Bakery .....		1,000	4,000				
Cigar manufacture .....		1,200	4,800				
Auto repair shops .....		1,500	8,500				
Harness manufacture and shoe shop .....		950	3,000				
Plumbing and repair work.....		300	6,500				
Bottling works .....		1,000	10,000				
Mining phosphates .....	175,000	10,000	250,000				
Canning factories .....		300	1,500				
Contract and repair work.....		10,000	55,000				

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DADE—				
Total County .....	147	\$ 773,900	1,357	380,791
Saw mills and products.....	7	128,000	97	27,100
Artificial stone and cement manufacture .....	4	19,000	30	10,000
Contracting and building .....	8	14,000	73	25,800
Boat building and repairing.....	11	37,000	107	31,200
Electric power and repair plants.....	3	24,000	35	17,500
Automobile and bicycle repair shops .....	18	35,200	78	25,550
Confection, baking and jelly manufacture .....	10	34,500	55	13,250
Women's tailoring and repair shops .....	5	13,500	37	6,880
Laundry and repair shops .....	7	10,500	47	7,800

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DADE.—Continued.				
Packing houses .....	23	72,500	366	68,110
Electric light and gas manufacture and water plant.....	2	75,000	50	15,000
Tinners, plumbing and repairing.....	4	24,000	23	8,200
Hat repair shops .....	3	2,000	10	3,000
Ice manufacture .....	2	55,000	50	13,500
Jewelers and watch repairing.....	3	35,000	14	4,600
Publishing and printing work.....	6	30,000	47	16,301
Cigar manufacturing .....	6	36,000	65	28,000
Mens' tailoring and repairing.....	2	6,000	10	5,500
Novelty works .....	3	15,000	25	5,250

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES: AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DADE.—Continued.				
Blacksmithing and repair shops.....	2	3,500	9	3,600
Bottling works .....	2	11,000	12	4,000
Buggy and wagon manufacture.....	2	19,000	22	8,000
Foundry and machine repair shops .....	4	21,600	30	11,500
Painting and paper hanging.....	3	10,000	14	3,650
Marine docks and ways.....	2	20,000	30	11,000
Manufacturing building material.....	3	22,000	21	6,500

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 10 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DADE.—Continued.								
Total County .....	1,290	370,403	60	\$ 10,230	7	108	2,110	684
Saw mills and products.....	97	27,100	...	.....	...	.....	138	50
Artificial stone and cement manufacture .....	30	10,000	...	.....	...	.....	61	22
Contracting and building .....	73	25,800	...	.....	...	.....	119	32
Boat building and repairing.....	107	31,200	...	.....	...	.....	169	78
Electric power and repair plants.....	35	17,500	...	.....	...	.....	43	27
Automobile and bicycle repair shops .....	78	25,550	...	.....	...	.....	173	54
Confection, baking and jelly manufacture ....	41	11,250	14	2,000	...	.....	87	26
Women's tailoring and repair shops .....	4	1,000	33	5,880	...	.....	48	26
Laundry and repair shops .....	45	7,400	2	400	...	.....	58	36

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DADE.—Continued.								
Packing houses .....	366	68,110	...	.....	...	.....	607	54
Electric light and gas manufacture and water plant .....	50	15,000	...	.....	...	.....	60	25
Tinners, plumbing and repairing .....	23	8,200	...	.....	...	.....	39	17
Hat repair shops .....	10	3,000	...	.....	...	.....	47	16
Ice manufacture .....	50	13,500	...	.....	...	.....	65	18
Jewelers and watch repairing .....	6	3,000	8	1,600	...	.....	14	9
Publishing and printing work .....	37	15,793	3	400	7	108	60	29
Cigar manufacturing .....	65	28,000	...	.....	...	.....	87	49
Mens' tailoring and repairing .....	10	5,500	...	.....	...	.....	10	10

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DADE.—Continued.								
Novelty works .....	25	5,250	...	...	...	...	32	15
Blacksmithing and repair shops.....	9	3,600	...	...	...	...	12	4
Bottling works .....	12	4,000	...	...	...	...	12	12
Buggy and wagon manufacture.....	22	8,000	...	...	...	...	39	14
Foundry and machine repair sho.....	30	11,500	...	...	...	...	41	19
Painting and paper hanging.....	14	3,650	...	...	...	...	14	14
Marine docks and ways .....	30	11,000	...	...	...	...	40	17
Manufacturing building material.....	21	6,500	...	...	...	...	35	11



TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginnerles and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DADE.—Continued.							
Total County .....							
Saw mills and products.....		*	*				
Artificial stone and cement manu- facture .....		*	*				
Contracting and building .....		*	*				
Boat building and repairing.....		*	*				
Electric power and repair plants.		*	*				
Automobile and bicycle repair shops .....		*	*				
Confection, baking and jelly manufacture .....		*	*				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (Including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DADE.—Continued.							
Women's tailoring and repair shops .....	•	•	•	•	•	•	•
Laundry and repair shops .....	•	•	•	•	•	•	•
Packing houses .....	•	•	•	•	•	•	•
Electric light and gas manufacturing and water plant.....	•	•	•	•	•	•	•
Tinners, plumbing and repairing.....	•	•	•	•	•	•	•
Hat-repair shops .....	•	•	•	•	•	•	•
Ice manufacture .....	•	•	•	•	•	•	•
Jewelers and watch repairing...	•	•	•	•	•	•	•
Publishing and printing work...	•	•	•	•	•	•	•
Cigar manufacturing .....	•	•	•	•	•	•	•

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value or Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DADE.—Continued.							
Mens' tailoring and repairing....	.....	*	*	.....	.....	.....	.....
Novelty works .....	.....	*	*	.....	.....	.....	.....
Blacksmithing and repair shops..	.....	*	*	.....	.....	.....	.....
Bottling works .....	.....	*	*	.....	.....	.....	.....
Buggy and wagon manufacture..	.....	*	*	.....	.....	.....	.....
Foundry and machine repair shops .....	.....	*	*	.....	.....	.....	.....
Painting and paper hanging.....	.....	*	*	.....	.....	.....	.....
Marine docks and ways .....	.....	*	*	.....	.....	.....	.....
Manufacturing building material.	.....	*	*	.....	.....	.....	.....

\*—Information Refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DESOTO—				
Total County .....	33	\$ 389,150	659	\$ 247,538
Saw mills and products.....	10	133,000	207	105,600
Naval stores, turpentine and resin.....	8	204,000	395	122,850
Blacksmithing and repair work.....	8	6,200	14	7,100
Shoemaking and repairing.....	2	150	2	450
Planing mills and novelty works.....	2	26,000	27	7,938
Cigar manufacture .....	1	300	3	1,500
Plumbing, electric, metal and light works.....	2	19,500	11	2,100

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DESOTO—Continued.								
Total County .....	659	\$ 247,538	...	\$ .....	...	\$ .....	814	517
Saw mills and products.....	207	105,600	...	...	...	...	245	180
Naval stores, turpentine and resin.....	395	122,850	...	...	...	...	500	305
Blacksmithing and repair work.....	14	7,100	...	...	...	...	19	8
Shoemaking and repairing.....	2	450	...	...	...	...	2	2
Planing mills and novelty works.....	27	7,938	...	...	...	...	30	15
Cigar manufacture .....	3	1,500	...	...	...	...	6	2
Plumbing, electric, metal and light works....	11	2,100	...	...	...	...	12	5

TABLE NO. 5--COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln tals Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DESOTO—Continued.							
Total County .....		\$ 158,550	\$ 473,950				
Saw mills and products.....		60,000	177,000				
Naval stores, turpentine and resin .....		74,800	226,400				
Blacksmithing and repair work.. ..		7,100	13,350				
Shoemaking and repairing.....		100	575				
Planing mills and novelty works. ....		5,250	37,875				
Cigar manufacture .....		2,000	4,000				
Plumbing, electric, metal and light works .....		9,300	14,750				

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL—				
Total County .....	1,093	\$ 11,155,495	13,839	\$10,190,208
Machinist repair shops.....	9	88,750	63	73,100
Tinning shops .....	13	32,750	47	53,000
Turning and scroll sawing.....	8	14,200	23	22,000
Fertilizer manufacturing .....	7	1,060,000	1,285	607,500
Water works .....	4			
Publishing .....	12	259,000	118	117,340
Extract chemical and patent medicine .....	7	47,500	28	32,600
Awning makers .....	5	19,000	14	16,600
Dock building .....	1	10,000	15	10,500

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL—Continued.				
Hatters .....	7	7,550	21	16,500
Mineral water springs.....	3	16,000	26	20,800
Picture framing .....	3	8,500	10	6,900
Tallow manufacture .....	1	2,200	5	3,500
Moving and storage.....	6	29,000	41	24,600
Ornamental iron works.....	1	15,000	20	16,000
Ornamental plaster works.....	1	30,000	15	20,000
Confectioners .....	19	123,850	115	113,700
Perfume manufacture .....	1	2,000	1	2,000
Fish industries .....	2	675,000	310	254,800



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL—Continued.				
Ship building and repair.....	1	450,000	350	275,000
Still manufacturing .....	1	30,000	15	11,000
Shingle mills .....	2	50,000	100	50,500
Machine works .....	11	135,500	105	103,344
Printing .....	23	293,600	219	239,400
Electrical contracting .....	6	73,700	76	78,200
Sculptors .....	2	6,000	4	6,700
Plumbing .....	21	240,900	200	243,300
Razor honeing and grinding.....	10	6,875	26	21,000
Florists .....	6	173,000	33	26,380

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL.—Continued.				
Screen manufacture .....	5	11,700	21	19,800
Gas fitting .....	3	4,400	33	21,600
Harness manufacture .....	3	4,500	10	11,100
Gas engine manufacture .....	2	20,600	9	10,800
Upholstering .....	4	10,500	9	10,400
Electric light plants .....	2	.....	.....	.....
Metal stamps .....	1	1,000	2	2,700
Blow pipe manufacturers .....	1	15,000	14	9,000
Coffee roasters .....	2	108,000	4	2,800
Photographic Adv. Slide Mfg. ....	2	5,000	4	4,400

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL.—Continued.				
Blacksmiths .....	31	15,250	82	75,500
Boiler makers and repairers.....	2	6,000	11	15,500
Automobile manufacture .....	2	38,000	13	13,000
Composition capitals .....	1	12,000	25	20,000
Watch makers and repairers.....	32	40,805	48	56,700
Jewelry manufacture .....	1	3,000	2	2,400
Window and door frame mfg'r.....	4	14,000	22	22,000
Millinery .....	19	184,050	121	105,700
Tile manufacture .....	3	1,300	33	39,000
Turpentine distillers .....	4	46,000	80	44,450

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL—Continued.				
Photographers .....	13	40,400	35	34,900
Motion pictures .....	15	314,900	170	222,580
Canning factory .....	1	10,000	6	4,800
Sheet metal works .....	10	32,200	53	63,844
Vulcanizing .....	5	9,700	12	13,000
Shoemakers and repairers .....	45	10,685	89	70,640
Shoe manufacture .....	2	25,000	26	26,000
Hand laundries .....	32	16,725	207	101,300
Furniture repairs .....	9	1,050	19	15,050
Bag manufacture .....	2	80,000	90	27,000

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL.—Continued.				
House moving .....	2	17,500	20	14,000
Chair factory .....	1	30,000	15	9,000
Trunk manufacture .....	1	25,000	15	12,000
Broom manufacture .....	2	50,000	40	31,000
Spring bed manufacturer .....	2	40,000	45	25,000
Ice cream manufacture .....	4	51,000	29	30,000
Dye works .....	2	800	4	3,000
Cabinet makers .....	10	3,350	19	19,200
Umbrella repair .....	1	350	2	1,800
Asphalt roofing .....	1	5,000	15	7,500

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL—Continued.				
Garages .....	17	236,000	19	85,980
Motorecycle repairs .....	2	4,700	4	3,300
Saw mills and products.....	26	1,323,000	2,128	1,232,700
Cleaning and Pressing .....	85	79,870	303	177,133
Brick contractors .....	1	200	10	12,000
Sewer contractor .....	1	3,000	20	14,000
Hauling contractors .....	3	25,000	50	20,000
Plaster contractor .....	1	200	10	15,500
Dredging contractors .....	2	310,000	350	190,300
Marble Works .....	4	66,600	48	69,000

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL—Continued.				
Iron brass foundries.....	0	85,500	73	72,400
Bicycle repairs .....	25	27,250	87	70,900
Brick manufacture .....	7	24,500	295	139,000
Bootblack stands .....	4	975	17	8,000
Vinegar manufacture .....	1	2,000	8	5,000
Blue prints manufacture .....	2	4,000	8	5,500
Blank book manufacture .....	1	10,000	6	5,400
Mattress manufacture .....	1	10,000	12	9,600
Yeast manufacture .....	1	4,000	7	7,000
Dressmakers .....	61	5,980	118	97,150

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL.—Continued.				
Picture printing and developing.....	2	6,000	8	7,000
Sign painting .....	7	4,550	31	37,200
Tailoring .....	50	77,550	138	135,715
Women tailoring .....	4	1,500	8	7,400
Wood yards .....	24	81,500	269	184,550
General repair shops .....	3	7,000	10	8,300
Scale and fixtures repairing.....	1	25,000	11	15,600
Talking machine repairing.....	1	20,000	6	6,500
Carriage manufacture and repair.....	7	84,000	128	127,000
Bottling works .....	8	74,000	131	99,300



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL.—Continued.				
Artificial stone manufacture.....	3	40,000	40	29,000
Naval stores .....	17	603,000	1,060	538,500
Opticians .....	9	30,500	16	25,912
Building Contractors .....	73	54,000	819	789,050
Wall paper contractors .....	2	1,030	6	5,800
Excavating contractor .....	1	10,000	12	10,800
General contractors and builders.....	37	140,350	796	665,800
Paving contractors .....	3	37,000	240	183,000
Painting contractors .....	4	7,500	52	47,000
Tile contractors .....	1	500	10	10,000

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL.—Continued.				
Novelty works .....	3	31,000	20	19,700
Book binding .....	1	5,000	5	5,000
Barrel manufacture .....	1	10,000	20	16,000
Boat builders .....	6	42,000	61	59,000
Locksmiths .....	2	2,500	4	4,000
Window cleaning .....	1	2,500	15	9,000
Cigar factories .....	17	119,300	184	276,200
Gunsmiths .....	2	2,200	4	4,400
Corset manufacture .....	1	2,000	3	4,500
Cloak and suit manufacture.....	1	13,000	7	5,600

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES: AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL.—Continued.				
Steam laundries .....	8	358,000	281	134,300
Bakeries .....	21	121,100	164	100,300
Syrup manufacture .....	1	50,000	12	12,000
Paint manufacture .....	1	50,000	17	17,000
Beer manufacture .....	1	100,000	15	17,000
Ice manufacturers .....	8	573,500	265	211,240
Well drillers .....	5	9,100	20	15,400
Steam fitting .....	6	25,500	22	25,600
Sidewalk manufacturers .....	4	5,700	42	41,000
Engraving and electrotyping .....	1	5,000	8	8,000

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
DUVAL—Continued.				
Paper hanging and decorating.....	1	5,000	2	1,800
Gas manufacture .....	13	475,000	115	84,250
Concrete contracting .....	7	14,300	97	83,700
Crate and box factories.....	12	160,000	290	152,000

TABLE NO. 4—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL—Continued.								
Total County .....	12,565	\$9,751,328	773	\$ 431,280	502	\$7,600	19,080	9,651
Machinist repair shops.....	63	73,100	...	.....	...	.....	75	55
Tinning shops .....	47	53,000	...	.....	...	.....	82	23
Turning and scroll sawing.....	23	22,000	...	.....	...	.....	28	18
Fertilizer manufacturing .....	1,285	607,500	...	.....	...	.....	1,525	995
Water works .....	...	.....	...	.....	...	.....	.....	.....
Publishing .....	103	103,840	15	13,500	500	7,000	132	117
Extract chemical and patent medicine .....	28	32,600	...	.....	...	.....	28	28
Awning makers .....	14	16,600	...	.....	...	.....	19	10
Dock building .....	15	10,500	...	.....	...	.....	40	15

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any Time During Year in Industry.	Least No. Employed at Any Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL—Continued.								
Hatters .....	17	13,900	4	2,600			24	14
Mineral water springs.....	26	20,800					31	21
Picture framing .....	10	6,900					10	10
Tallow manufacture .....	5	3,500					6	5
Moving and storage.....	41	24,600					57	35
Ornamental iron works.....	20	16,000					25	15
Ornamental plaster works.....	15	20,000					20	10
Confectioners .....	99	103,100	16	10,600			144	87
Perfume manufacture .....	1	2,000					1	1
Fish industries .....	310	254,800					420	220

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL—Continued.								
Ship building and repair.....	350	275,000	...	.....	...	.....	500	200
Still manufacturing .....	14	10,300	1	700	...	.....	15	12
Shingle mills .....	100	50,500	...	.....	...	.....	130	70
Machine works .....	105	103,344	...	.....	...	.....	134	81
Printing .....	201	228,100	18	11,300	...	.....	266	185
Electrical contracting .....	72	76,130	4	2,080	...	.....	137	63
Sculptors .....	4	6,700	...	.....	...	.....	4	4
Plumbing .....	200	243,300	...	.....	...	.....	265	140
Razor honeing and grinding.....	26	21,000	...	.....	...	.....	29	22
Florists .....	31	24,880	2	1,500	...	.....	48	31

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL.—Continued.								
Screen manufacture .....	21	19,800	...	...	...	...	28	13
Gas fitting .....	33	21,600	...	...	...	...	47	21
Harness manufacture .....	10	11,100	...	...	...	...	14	7
Gas engine manufacture .....	9	10,800	...	...	...	...	10	8
Upholstering .....	9	10,400	...	...	...	...	12	7
Electric light plants .....	...	...	...	...	...	...	...	...
Metal stamps .....	2	2,700	...	...	...	...	3	2
Blow pipe manufacturers .....	14	9,000	...	...	...	...	14	12
Coffee roasters .....	4	2,800	...	...	...	...	4	4
Photographic Adv. Slide Mfg. ....	4	4,400	...	...	...	...	5	3



TABLE NG. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL.—Continued.								
Blacksmiths .....	82	75,500	...	...	...	...	109	62
Boiler makers and repairers.....	11	15,500	...	...	...	...	15	8
Automobile manufacture .....	13	13,000	...	...	...	...	18	11
Composition capitals .....	25	20,000	...	...	...	...	30	15
Watch makers and repairers.....	48	56,700	...	...	...	...	64	41
Jewelry manufacture .....	2	2,400	...	...	...	...	2	2
Window and door frame mfg'r.....	22	22,000	...	...	...	...	30	14
Millinery .....	...	...	121	105,700	...	...	158	88
Tile manufacture .....	33	39,000	...	...	...	...	42	22
Turpentine distillers .....	80	44,450	...	...	...	...	100	60

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL—Continued.								
Photographers .....	29	30,400	6	4,500	...	...	47	27
Motion pictures .....	163	117,960	7	4,620	...	...	184	146
Canning factory .....	6	4,800	...	...	...	...	6	6
Sheet metal works .....	53	63,844	...	...	...	...	92	38
Vulcanizing .....	12	13,000	...	...	...	...	13	10
Shoemakers and repairers .....	89	70,640	...	...	...	...	114	72
Shoe manufacture .....	26	26,000	...	...	...	...	33	19
Hand laundries .....	67	42,550	140	58,750	...	...	258	160
Furniture repairs .....	19	15,050	...	...	...	...	19	16
Bag manufacture .....	55	18,000	35	9,000	...	...	120	65

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL—Continued.								
Iron brass foundries.....	73	72,400	...	.....	...	.....	82	57
Bicycle repairs .....	87	70,900	...	.....	...	.....	92	58
Brick manufacture .....	295	139,000	...	.....	...	.....	420	185
Bootblack stands .....	17	8,000	...	.....	...	.....	21	10
Vinegar manufacture .....	8	5,000	...	.....	...	.....	8	8
Blue prints manufacture .....	6	4,600	?	900	...	.....	8	4
Blank book manufacture .....	5	5,000	...	.....	1	400	7	4
Mattress manufacture .....	12	9,600	...	.....	...	.....	12	8
Yeast manufacture .....	7	7,000	...	.....	...	.....	7	7
Dressmakers .....	.....	.....	118	97,150	...	.....	163	82

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL—Continued.								
Garages .....	91	85,980	...	.....	...	.....	108	64
Motorcycle repairs .....	4	3,300	...	.....	...	.....	4	4
Saw mills and products .....	2,128	1,232,700	...	.....	...	.....	2,565	1,680
Cleaning and Pressing .....	292	171,932	11	5,200	1	200	430	204
Brick contractors .....	10	12,000	...	.....	...	.....	18	5
Sewer contractor .....	20	14,000	...	.....	...	.....	40	10
Hauling contractors .....	50	20,000	...	.....	...	.....	65	40
Plaster contractor .....	10	15,500	...	.....	...	.....	15	3
Dredging contractors .....	350	190,300	...	.....	...	.....	375	200
Marble Works .....	48	60,000	...	.....	...	.....	54	40

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL.—Continued.								
House moving .....	20	14,000	...	...	...	...	30	10
Chair factory .....	15	9,000	...	...	...	...	19	10
Trunk manufacture .....	15	12,000	...	...	...	...	20	10
Broom manufacture .....	40	31,000	...	...	...	...	50	27
Spring bed manufacturer .....	45	25,000	...	...	...	...	60	31
Ice cream manufacture .....	29	30,000	...	...	...	...	42	20
Dye works .....	4	3,000	...	...	...	...	6	3
Cabinet makers .....	19	19,200	...	...	...	...	31	14
Umbrella repair .....	2	1,800	...	...	...	...	2	2
Asphalt roofing .....	15	7,500	...	...	...	...	20	10

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL.—Continued.								
Picture printing and developing.....	8	7,000	...	.....	...	.....	8	8
Sign painting .....	31	37,200	...	.....	...	.....	42	16
Tailoring .....	138	135,715	...	.....	...	.....	176	103
Women tailoring .....	8	7,400	...	.....	...	.....	10	5
Wood yards .....	269	184,550	...	.....	...	.....	431	156
General repair shops .....	10	8,300	...	.....	...	.....	15	6
Scale and fixtures repairing.....	9	13,520	2	2,080	...	.....	11	11
Talking machine repairing.....	4	5,300	2	1,200	...	.....	6	6
Carriage manufacture and repair.....	128	127,200	...	.....	...	.....	163	82
Bottling works .....	131	99,300	...	.....	...	.....	156	91

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL.—Continued.								
Artificial stone manufacture.....	40	29,000	...	...	...	...	55	26
Naval stores .....	1,060	538,500	...	...	...	...	1,425	700
Opticians .....	16	25,912	...	...	...	...	20	15
Building Contractors .....	819	789,050	...	...	...	...	1,591	361
Wall paper contractors .....	5	5,000	1	800	...	...	11	4
Excavating contractor .....	12	10,800	...	...	...	...	24	10
General contractors and builders.....	796	665,800	...	...	...	...	1,855	383
Paving contractors .....	240	183,000	...	...	...	...	450	100
Painting contractors .....	52	47,000	...	...	...	...	70	19
Tile contractors .....	10	10,000	...	...	...	...	15	7

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL.—Continued.								
Steam laundries .....	79	62,600	202	71,700	...	...	313	220
Bakeries .....	106	80,200	58	20,100	...	...	193	132
Syrup manufacture .....	12	12,000	...	...	...	...	15	10
Paint manufacture .....	17	17,000	...	...	...	...	23	13
Beer manufacture .....	15	17,000	...	...	...	...	15	15
Ice manufacturers .....	265	211,240	...	...	...	...	321	211
Well drillers .....	20	15,400	...	...	...	...	32	13
Steam fitting .....	22	25,600	...	...	...	...	28	14
Sidewalk manufacturers .....	42	41,000	...	...	...	...	51	22
Engraving and electrotyping .....	8	8,000	...	...	...	...	9	7



TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL.—Continued.								
Novelty works .....	20	19,700	...	.....	...	.....	25	16
Book binding .....	5	5,000	...	.....	...	.....	5	5
Barrel manufacture .....	20	16,000	...	.....	...	.....	20	15
Boat builders .....	61	59,000	...	.....	...	.....	82	46
Locksmiths .....	4	4,000	...	.....	...	.....	7	3
Window cleaning .....	15	9,000	...	.....	...	.....	20	10
Cigar factories .....	184	276,200	...	.....	...	.....	257	140
Gunsmiths .....	4	4,400	...	.....	...	.....	6	4
Corset manufacture .....	.....	.....	3	4,500	...	.....	4	2
Cloak and suit manufacture.....	3	2,600	4	3,000	...	.....	7	6

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
DUVAL—Continued.								
Paper hanging and decorating.....	1	1,000	1	800	...	...	10	5
Gas manufacture .....	115	84,250	...	...	...	...	135	85
Concrete contracting .....	97	83,700	...	...	...	...	166	23
Crate and box factories.....	290	152,000	...	...	...	...	350	265

TABLE NO. 4—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL—Continued.							
Total County .....		\$19,666,925	\$28,222,578				
Machinist. rep. shops.....		252,120	362,660				
Tinning shops .....		169,500	224,300				
Turning and scroll sawing.....		76,500	104,960				
Fertilizer manufacturing .....		1,905,000	2,810,000				
Water works .....							
Publishing .....		135,300	187,200				
Extract chem. and patent medicine .....		108,000	161,500				
Awning makers .....		52,000	70,000				
Dock building .....							

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products—Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (Including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL—Continued.							
Hatters .....		17,500	25,750				
Mineral water springs.....		18,000	24,000				
Picture framing .....		21,120	33,638				
Tallow manufacture .....		7,000	9,622				
Moving and storage .....		61,200	97,151				
Ornamental iron works.....		30,000	47,000				
Ornamental plaster works.....		45,000	70,000				
Confectioners .....		279,300	398,000				
Perfume manufacture .....		4,500	8,000				
Fish industries .....							

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL—Continued.							
Ship building and repair.....	.....	502,000	735,700	.....	.....	.....	.....
Still manufacturing .....	.....	40,000	55,000	.....	.....	.....	.....
Shingle mills .....	.....	40,000	63,250	.....	.....	.....	.....
Machine works .....	.....	289,000	307,500	.....	.....	.....	.....
Printing .....	.....	612,800	862,420	.....	.....	.....	.....
Electrical contracting .....	.....	86,750	123,375	.....	.....	.....	.....
Sculptors .....	.....	19,000	33,000	.....	.....	.....	.....
Plumbing .....	.....	654,800	908,310	.....	.....	.....	.....
Razor honing and grinding.....	.....	23,575	34,610	.....	.....	.....	.....
Florists .....	.....	90,100	153,340	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products -- Character of Ores Mined--Phos- phate--Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL.—Continued.							
Screen manufacture .....	.....	54,000	84,000	.....	.....	.....	.....
Gas fitting .....	.....	15,800	22,150	.....	.....	.....	.....
Harness manufacture .....	.....	36,000	53,000	.....	.....	.....	.....
Gas engine manufacture .....	.....			.....	.....	.....	.....
Upholstering .....	.....	39,000	58,000	.....	.....	.....	.....
Electric light plants .....	.....			.....	.....	.....	.....
Metal stamps .....	.....	3,700	4,800	.....	.....	.....	.....
Blow pipe manufacturers.....	.....	21,000	35,000	.....	.....	.....	.....
Coffee roasters .....	.....	14,000	18,000	.....	.....	.....	.....
Photographic Adv. Slide Mfg....	.....	13,000	20,000	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL.—Continued.							
Blacksmiths .....		114,800	165,085				
Boiler makers and repairers.....		12,000	16,000				
Automobile manufacture .....		37,000	54,250				
Composition capitals .....		55,650	83,440				
Watch makers and repairers.....		139,018	230,189				
Jewelry manufacture .....		12,000	14,500				
Window and door frame mfg'r....		56,000	76,000				
Millinery .....		347,120	565,173				
Tile manufacture .....		90,500	129,000				
Turpentine distillers .....		78,425	122,021				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL—Continued.							
Photographers .....	.....	142,600	195,650	.....	.....	.....	.....
Motion pictures .....	.....	154,950	233,235	.....	.....	.....	.....
Canning factory .....	.....	30,000	45,000	.....	.....	.....	.....
Sheet metal works .....	.....	194,025	263,050	.....	.....	.....	.....
Vulcanizing .....	.....	41,650	57,820	.....	.....	.....	.....
Shoemakers and repairers.....	.....	101,185	140,864	.....	.....	.....	.....
Shoe manufacture .....	.....	84,000	117,000	.....	.....	.....	.....
Hand laundries .....	.....	119,897	175,057	.....	.....	.....	.....
Furniture repairs .....	.....	20,790	30,749	.....	.....	.....	.....
Bag manufacture .....	.....	130,000	160,000	.....	.....	.....	.....



TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Gineries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL—Continued.							
Iron brass foundries.....		197,075	315,500				
Bicycle repairs.....		94,925	161,985				
Brick manufacture.....		238,000	306,750				
Bootblack stands.....		10,100	14,800				
Vinegar manufacture.....		10,000	16,000				
Blue prints manufacture.....		8,000	11,500				
Blank book manufacture.....		8,000	10,000				
Mattress manufacture.....		23,000	30,000				
Yeast manufacture.....		12,000	20,000				
Dressmakers.....		58,490	92,017				

TABLE NO. 5—SPECIFIED IN MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL—Continued.							
Garages .....		235,950	400,020				
Motorcycle repairs .....							
Saw mills and products .....		2,465,000	3,319,750				
Cleaning and Pressing .....		275,210	392,160				
Brick contractors .....							
Sewer contractor .....							
Hauling contractors .....		30,000	35,000				
Plaster contractor .....		30,000	35,000				
Dredging contractors .....							
Marble Works .....		173,000	240,700				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL.—Continued.							
House moving .....		30,000	41,000				
Chair factory .....		75,000	100,000				
Trunk manufacture .....							
Broom manufacture .....		150,000	195,000				
Spring bed manufacturer .....		87,000	116,000				
Ice cream manufacture .....		106,200	156,800				
Dye works .....		8,400	11,132				
Cabinet makers .....		24,450	33,450				
Umbrella repair .....		2,300	4,005				
Asphalt roofing .....		18,000	24,000				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL.—Continued.							
Picture printing and developing..	.....	19,000	28,000	.....	.....	.....	.....
Sign painting .....	.....	83,600	107,300	.....	.....	.....	.....
Tailoring .....	.....	237,502	388,450	.....	.....	.....	.....
Women tailoring .....	.....	13,000	19,100	.....	.....	.....	.....
Wood yards .....	.....	282,000	391,140	.....	.....	.....	.....
General repair shops .....	.....	12,400	18,900	.....	.....	.....	.....
Scale and fixtures repairing.....	.....	.....	.....	.....	.....	.....	.....
Talking machine repairing.....	.....	.....	.....	.....	.....	.....	.....
Carriage manufacture and repair.	.....	217,000	305,250	.....	.....	.....	.....
Bottling works .....	.....	160,000	227,000	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used, (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL.—Continued.							
Artificial stone manufacture.....	.....	130,000	200,000	.....	.....	.....	.....
Naval stores .....	.....	1,170,000	1,662,000	.....	.....	.....	.....
Opticians .....	.....	70,370	127,540	.....	.....	.....	.....
Building Contractors .....	.....	1,999,500	2,300,750	.....	.....	.....	.....
Wall paper contractors .....	.....	11,500	15,000	.....	.....	.....	.....
Excavating contractor .....	.....	.....	.....	.....	.....	.....	.....
General contractors and builders.	.....	830,000	1,001,500	.....	.....	.....	.....
Paving contractors .....	.....	190,000	240,000	.....	.....	.....	.....
Painting contractors .....	.....	73,000	88,000	.....	.....	.....	.....
Tile contractors .....	.....	.....	.....	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed
DUVAL.—Continued.							
Steam laundries .....	.....	311,030	499,000	.....	.....	.....	.....
Bakeries .....	.....	284,250	429,795	.....	.....	.....	.....
Syrup manufacture .....	.....	40,000	65,000	.....	.....	.....	.....
Paint manufacture .....	.....	60,000	95,000	.....	.....	.....	.....
Beer manufacture .....	.....	75,000	110,000	.....	.....	.....	.....
Ice manufacturers .....	.....	681,900	937,895	.....	.....	.....	.....
Well drillers .....	.....	95,500	134,400	.....	.....	.....	.....
Steam fitting .....	.....	103,300	143,000	.....	.....	.....	.....
Sidewalk manufacturers .....	.....	140,000	214,250	.....	.....	.....	.....
Engraving and electrotyping .....	.....	20,000	36,000	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL.—Continued.							
Novelty works .....	.....	34,363	47,330	.....	.....	.....	.....
Book binding .....	.....	10,000	17,350	.....	.....	.....	.....
Barrel manufacture .....	.....	30,000	49,000	.....	.....	.....	.....
Boat builders .....	.....	144,025	197,965	.....	.....	.....	.....
Locksmiths .....	.....	15,500	23,000	.....	.....	.....	.....
Window cleaning .....	.....	12,000	18,575	.....	.....	.....	.....
Cigar factories .....	.....	384,150	511,450	.....	.....	.....	.....
Gunsmiths .....	.....	11,000	16,500	.....	.....	.....	.....
Corset manufacture .....	.....	5,680	8,750	.....	.....	.....	.....
Cloak and suit manufacture.....	.....	20,000	32,000	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used, (including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
DUVAL—Continued.							
Paper hanging and decorating...	.....	12,000	20,000	.....	.....	.....	.....
Gas manufacture .....	.....			.....	.....	.....	.....
Concrete contracting .....	.....	106,000	155,500	.....	.....	.....	.....
Crate and box factories.....	.....	230,000	330,000	.....	.....	.....	.....



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ESCAMBIA.				
Total County .....	57	\$ 696,895	637	\$ 251,240
Saw mills and products.....	2	195,000	165	53,000
Naval stores, turpentine and resin.....	4	97,075	111	34,560
Ginneries and products.....	2	2,000	6	800
Brick manufacture .....	2	83,000	98	26,000
Box manufacture and novelty works .....	2	7,000	30	9,640
Blacksmithing and general repair shops .....	13	14,720	38	31,700
Wood distillation works.....	1	150,000	40	19,000
Tailoring and repair shops.....	7	5,850	15	7,280
Furniture repairing and cabinet work .....	4	5,800	13	5,589

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES: AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ESCAMBIA—Continued.				
Bakeries and products.....	2	4,700	10	7,000
Ice manufacturing .....	2	70,000	39	9,600
Shoemaking and repairing.....	7	1,900	12	8,760
Automobile repair works.....	2	4,500	8	6,800
Plumbing, metal working and repair shops .....	4	3,350	17	7,340
Bottling works .....	1	40,000	15	10,400
Still manufacture .....	1	6,000	6	4,680
Cigar factories .....	1	6,000	14	9,100

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ESCAMBIA—Continued.								
Total County .....	633	250,234	1	468	3	638	804	430
Saw mills and products.....	165	53,000	...	...	...	...	190	87
Naval stores, turpentine and resin.....	111	34,560	...	...	...	...	132	76
Ginneries and products.....	6	800	...	...	...	...	6	6
Brick manufacture .....	98	26,000	...	...	...	...	120	80
Box manufacture and novelty works .....	30	9,640	...	...	...	...	42	22
Blacksmithing and general repair shops....	36	31,292	...	...	2	508	49	28
Wood distillation works.....	40	19,000	...	...	...	...	40	20
Tailoring and repair shops.....	15	7,280	...	...	...	...	20	10
Furniture repairing and cabinet work....	13	5,580	...	...	...	...	21	11

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ESCAMBIA—Continued.								
Bakeries and products.....	10	7,000	...	.....	...	.....	14	7
Ice manufacturing .....	39	9,600	...	.....	...	.....	57	30
Shoemaking and repairing.....	12	8,760	...	.....	...	.....	18	9
Automobile repair works.....	8	6,800	...	.....	...	.....	9	6
Plumbing, metal working and repair shops.	16	7,210	...	.....	1	130	25	14
Bottling works .....	14	9,932	...	468	...	.....	32	7
Still manufacture .....	6	4,680	...	.....	...	.....	15	6
Cigar factories .....	14	9,100	...	.....	...	.....	14	11

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products—Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
ESCAMBIA—Continued.							
Total County .....	.....	462,845	743,239	590,000	.....	35,750	.....
Saw mills and products.....	.....	145,800	185,500	.....	.....	.....	.....
Naval stores, turpentine and resin .....	.....	75,405	97,500	.....	.....	.....	.....
Ginneries and products.....	.....	500	3,500	590,000	.....	35,750	.....
Brick manufacture .....	.....	44,500	61,000	.....	.....	.....	.....
Box manufacture and novelty works .....	.....	14,000	59,600	.....	.....	.....	.....
Blacksmithing and general repair shops .....	.....	61,980	86,660	.....	.....	.....	.....
Wood distillation works.....	.....	13,400	30,000	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
ESCAMBIA—Continued.							
Tailoring and repair shops.....		4,700	13,300				
Furniture repairing and cabinet work .....		19,560	28,800				
Bakeries and products.....		10,800	30,400				
Ice manufacturing .....		16,000	49,100				
Shoemaking and repairing.....		7,400	13,820				
Automobile repair works.....		8,400	9,600				
Plumbing, metall working and re- pair shops .....		12,800	17,200				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
ESCAMBIA—Continued.							
Bottling works .....	.....	14,600	37,950	.....	.....	.....	.....
Still manufacture .....	.....	1,200	2,900	.....	.....	.....	.....
Cigar factories .....	.....	13,200	16,400	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
FRANKLIN—				
Total County .....	48	\$ 1,504,100	1,633	\$ 517,040
Saw mills and products .....	5	915,000	755	341,750
Naval stores, turpentine and rosin .....	10	270,000	320	44,190
Blacksmithing and repair shops .....	5	5,500	18	6,200
Machine and iron works .....	3	35,000	16	11,700
Ship carpentering and repairing .....	4	34,300	30	16,450
Fish and oyster packing .....	11	103,300	306	34,050
Ice manufacture .....	3	40,000	20	12,000
Shingle manufacture .....	2	35,000	45	8,750
Soda water manufacture and bottling works .....	2	5,000	10	6,000



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting..	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
FRANKLIN.—Continued.				
Electric light and power plants.....	1	30,000	10	4,500
Automobile repair shops .....	1	1,000	3	850
Sponge fishing and packing .....	1	30,000	100	30,000

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
FRANKLIN.—Continued.								
Total County .....	1,633	517,040	...	.....	...	.....	2,453	1,255
Saw mills and products .....	755	341,750	...	.....	...	.....	1,065	705
Naval stores, turpentine and rosin .....	320	44,190	...	.....	...	.....	410	230
Blacksmithing and repair shops .....	18	6,200	...	.....	...	.....	33	18
Machine and iron works .....	16	11,700	...	.....	...	.....	31	16
Ship carpentering and repairing .....	30	16,450	...	.....	...	.....	79	14
Fish and oyster packing .....	306	34,650	...	.....	...	.....	557	106
Ice manufacture .....	20	12,000	...	.....	...	.....	30	14
Shingle manufacture .....	45	8,750	...	.....	...	.....	60	30
Soda water manufacture and bott .....	10	6,000	...	.....	...	.....	19	10

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAOES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number	Wages.	Average Number.	Wages.		
FRANKLIN—Continued.								
Electric light and power plants.....	10	4,500	...	.....	...	.....	15	10
Automobile repair shops .....	3	850	...	.....	...	.....	4	2
Sponge fishing and packing .....	100	30,000	...	.....	...	.....	150	100

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
FRANKLIN.—Continued.							
Total County .....	.....	•	•	.....	.....	.....	.....
Saw mills and products .....	.....	•	•	.....	.....	.....	.....
Naval stores, turpentine and rosin .....	.....	•	•	.....	.....	.....	.....
Blacksmithing and repair shops.. ..	.....	•	•	.....	.....	.....	.....
Machine and iron works .....	.....	•	•	.....	.....	.....	.....
Ship carpentering and repairing.. ..	.....	•	•	.....	.....	.....	.....
Fish and oyster packing .....	.....	•	•	.....	.....	.....	.....
Ice manufacture .....	.....	•	•	.....	.....	.....	.....
Shingle manufacture .....	.....	•	•	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products -- Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
FRANKLIN.—Continued.							
Soda water manufacture and bottling works .....	.....	*	*	.....	.....	.....	.....
Electric light and power plants..	.....	*	*	.....	.....	.....	.....
Automobile repair shops .....	.....	*	*	.....	.....	.....	.....
Sponge fishing and packing .....	.....	*	*	.....	.....	.....	.....

\*—Information Refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
GADSDEN.				
Total County .....	36	\$ 345,400	475	\$ 148,126
Saw mills and products.....	5	29,800	113	31,662
Naval stores, turpentine and resin.....	3	110,000	173	55,300
Ginneries and products.....	7	28,500	20	1,793
Grist mills and products.....	4	4,000	4	1,200
General repair shops.....	12	7,190	18	7,127
Bottling works .....	2	6,000	12	3,456
Ice manufacture .....	1	20,000	9	3,588
Mining, fullers earth.....	2	140,000	126	44,000

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
GADSDEN—Continued.								
Total County .....	475	\$ 148,126	...	.....	...	.....	605	317
Saw mills and products.....	113	31,662	...	.....	...	.....	138	78
Naval stores, turpentine and resin.....	173	55,300	...	.....	...	.....	235	110
Ginneries and products.....	20	1,793	...	.....	...	.....	25	10
Grist mills and products.....	4	1,200	...	.....	...	.....	4	4
General repair shops.....	18	7,127	...	.....	...	.....	24	15
Bottling works .....	12	3,456	...	.....	...	.....	15	6
Ice manufacture .....	9	3,588	...	.....	...	.....	9	9
Mining, fillers earth.....	126	44,000	...	.....	...	.....	155	85

TABLE NO. 4—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
GADSDEN—Continued.							
Total County .....	9,120	98,197	322,373	712,500	44,800	41,780	2,688
Saw mills and products.....		30,800	68,200				
Naval stores, turpentine and resin .....		20,300	107,500				
Ginneries and products.....		495	3,348	712,500	44,800	41,780	2,688
Grist mills and products.....		190	2,050				
General repair shops.....		1,802	12,065				
Bottling works .....		1,578	9,410				
Ice manufacture .....		4,032	28,600				
Mining, fullers earth.....	9,120	39,000	91,200				



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
HAMILTON—				
Total County .....	53	698,025	764	259,140
Saw mills and products .....	8	313,650	261	111,000
Naval stores, turpentine and rosin .....	11	180,000	294	65,900
Ginneries and products .....	10	46,500	61	9,810
Blacksmithing, repairing and wheelwright .....	9	13,700	19	10,980
Planing mills and products .....	3	102,500	73	33,500
Shingle manufacture .....	3	8,100	33	20,150
Ice and light manufacture .....	1	25,000	10	4,500
Grist mills and products .....	4	3,625	7	1,700
Millinery and repairing .....	4	4,950	6	1,600

TABLE NG. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
HAMILTON.—Continued.								
Total County .....	752	257,105	6	1,600	6	435	866	641
Saw mills and products .....	261	111,000	...	.....	...	.....	282	216
Naval stores, turpentine and rosin .....	294	65,900	...	.....	...	.....	342	254
Ginneries and products .....	65	9,375	...	.....	6	435	73	50
Blacksmithing, repairing and whe. ....	19	10,980	...	.....	...	.....	24	14
Planing mills and products .....	73	33,500	...	.....	...	.....	83	58
Shingle manufacture .....	33	20,150	...	.....	...	.....	38	31
Ice and light manufacture .....	10	4,500	...	.....	...	.....	10	8
Grist mills and products .....	7	1,700	...	.....	...	.....	7	7
Millinery and repairing .....	...	.....	6	1,600	...	.....	7	4

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mineral Products -- Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
HAMILTON.—Continued.							
Total County .....		398,966	612,376	.....	1,639,200	.....	67,900
Saw mills and products .....		191,100	255,000	.....	.....	.....	.....
Naval stores, turpentine and rosin .....		88,800	172,000	.....	.....	.....	.....
Ginneries and products .....		14,370	21,900	.....	1,639,200	.....	67,900
Blacksmithing, repairing and wheelwright .....		14,530	21,400	.....	.....	.....	.....
Planing mills and products .....		48,000	76,000	.....	.....	.....	.....
Shingle manufacture .....		29,350	47,500	.....	.....	.....	.....
Ice and light manufacture .....		7,000	9,000	.....	.....	.....	.....
Grist mills and products .....		1,116	2,376	.....	.....	.....	.....
Millinery and repairing .....		4,700	7,200	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
HERNANDO—				
Total County .....	21	\$ 1,477,350	1,424	\$ 665,450
Saw mills and products.....	5	422,000	280	104,050
Naval stores, turpentine and resin.....	10	542,000	488	181,000
Shingle manufacture .....	2	503,500	645	367,500
Cigar manufacture .....	1	7,500	6	9,000
Blacksmithing and repair shops.....	3	2,350	5	3,900

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number	Wages.	Average Number.	Wages.	Average Number.	Wages.		
HERNANDO—Continued.								
Total County .....	1,424	\$ 665,450	...	.....	...	.....	1,835	1,184
Saw mills and products.....	280	104,050	...	.....	...	.....	355	225
Naval stores, turpentine and resin.....	488	181,000	...	.....	...	.....	628	384
Shingle manufacture .....	645	367,500	...	.....	...	.....	840	563
Cigar manufacture .....	6	9,000	...	.....	...	.....	7	5
Blacksmithing and repair shops.....	5	3,900	...	.....	...	.....	5	5

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
HERNANDO—Continued.							
Total County .....	.....	\$ 707,300	\$ 1,421,500	.....	.....	.....	.....
Saw mills and products.....	.....	172,000	447,500	.....	.....	.....	.....
Naval stores, turpentine and resin .....	.....	255,000	390,000	.....	.....	.....	.....
Shingle manufacture .....	.....	260,000	550,000	.....	.....	.....	.....
Cigar manufacture .....	.....	12,000	20,000	.....	.....	.....	.....
Blacksmithing and repair shops..	.....	8,300	14,000	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
<b>HILLSBOROUGH—</b>				
Total County .....	542	\$ 11,273,510	15,081	11,625,645
*Cigar manufacture .....	128	3,280,750	10,114	7,902,448
Publishing and job printing .....	10	123,800	93	104,292
Marine ways .....	2	105,000	65	51,480
Miscellaneous building and general contracting .....	163	957,700	1,451	1,346,288
Automobile repair shops .....	8	34,250	59	56,576
Bakeries and products .....	10	25,000	72	45,869
Blacksmithing and repairing .....	22	19,250	56	48,048
Mens' tailoring and repair shops.....	9	58,400	33	28,912
Watch making and repairing .....	7	3,600	9	11,300

\*—Total number of cigars manufactured, 295,379,600.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
HILLSBOROUGH.—Continued.				
Wood repair shops .....	23	20,700	151	64,870
Ice cream and confection manufacture .....	12	9,150	41	44,352
Millinery and womens' tailoring .....	14	12,300	27	12,870
Shoe making and repairing .....	16	2,610	21	14,404
Saw mills and products .....	10	178,100	152	115,061
Naval stores, turpentine and rosin .....	6	48,000	175	84,240
Mining (Phosphates) .....	2	1,300,000	500	405,000
Planing mills and novelty works .....	5	286,000	292	174,148
Foundry, machinery and sheet metal manufacturing works..	9	397,000	266	142,844
Ice manufacture .....	4	233,000	57	32,520



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
HILLSBOROUGH.—Continued.				
Box manufacture .....	4	337,500	312	206,700
Brewing and bottling works .....	4	333,500	88	61,256
Irrigation plants .....	12	6,300	16	7,488
Electric works and power plants.....	2	2,950,000	382	348,660
Miscellaneous special industries.....	60	551,600	649	296,024

TABLE NG. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
<b>HILLSBOROUGH.—Continued.</b>								
Total County .....	12,701	10,403,357	2,259	1,201,892	41	10,298	18,677	11,680
*Cigar manufacture .....	8,117	6,834,124	1,988	1,065,516	9	2,808	13,348	7,205
Publishing and job printing .....	92	104,186	.....	.....	1	106	114	80
Marine ways .....	65	51,480	.....	.....	.....	.....	86	24
Miscellaneous building and general contracting .....	1,383	1,296,780	68	49,510	.....	.....	1,518	1,369
Automobile repair shops .....	59	56,576	.....	.....	.....	.....	69	49
Bakeries and products .....	65	42,432	7	3,432	.....	.....	78	66
Blacksmithing and repairing .....	56	48,048	.....	.....	.....	.....	56	56
Mens' tailoring and repair shops .....	32	28,288	1	624	.....	.....	39	29

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
HILLSBOROUGH.—Continued.								
Watch making and repairing .....	9	11,300	.....	.....	.....	.....	9	9
Wood repair shops .....	140	62,894	.....	.....	11	1,976	166	136
Ice cream and confection manufacture..	41	44,352	.....	.....	.....	.....	43	40
Millinery and womens' tailoring.....	.....	.....	27	12,870	.....	.....	28	27
Shoe making and repairing .....	21	14,404	.....	.....	.....	.....	24	21
Saw mills and products .....	152	115,061	.....	.....	.....	.....	170	137
Naval stores, turpentine and rosin.....	175	842,240	.....	.....	.....	.....	201	151
Mining (Phosphates) .....	500	405,000	.....	.....	.....	.....	500	500
Planing mills and novelty works.....	289	173,160	1	780	2	208	298	286

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
HILLSBOROUGH.—Continued.								
Foundry, machinery and sheet metal manufacturing works .....	266	142,814	.....	.....	.....	.....	386	196
Ice manufacture .....	57	52,520	.....	.....	.....	.....	59	55
Box manufacture .....	241	138,060	159	66,144	12	2,496	440	384
Brewing and bottling works .....	78	57,304	5	1,872	5	2,080	96	71
Irrigation plants .....	16	7,488	.....	.....	.....	.....	16	16
Electric works and power plants.....	382	348,660	.....	.....	.....	.....	410	354
Miscellaneous special industries.....	465	284,156	3	1,144	1	624	526	416

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
HILLSBOROUGH.—Continued.							
Total County .....	249,600	15,544,185	38,280,331				
*Cigar manufacture .....		9,182,400	17,924,963				
Publishing and job printing .....		123,828	233,400				
Marine ways .....		59,240	80,500				
Miscellaneous building and gen- eral contracting .....		1,724,596	3,528,480				
Automobile repair shops .....		59,270	121,800				
Bakeries and products .....		137,760	201,360				
Blacksmithing and repairing ....		39,380	109,140				
Mens' tailoring and repair shops.		56,700	145,600				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
HILLSBOROUGH.—Continued.							
Foundry, machinery and sheet metal manufacturing works . . . . .		327,435	1,000,400				
Ice manufacture . . . . .		78,600	220,900				
Box manufacture . . . . .		151,550	400,400				
Brewing and bottling works . . . . .		1,272,350	6,718,600				
Irrigation plants . . . . .		8,236	17,000				
Electric works and power plants. . . . .		387,900	775,000				
Miscellaneous special industries. . . . .		457,928	2,673,887				

TABLE NO. 5—SPECIFIED IN MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products -- Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea- Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea- Island Cotton Seed.
HILLSBOROUGH.—Continued.							
Watch making and repairing ...	.....	12,157	24,960	.....	.....	.....	.....
Wood repair shops .....	.....	170,241	500,413	.....	.....	.....	.....
Ice cream and confection manu- facture .....	.....	49,361	131,849	.....	.....	.....	.....
Millinery and womens' tailoring..	.....	17,175	38,264	.....	.....	.....	.....
Shoe making and repairing .....	.....	17,218	31,252	.....	.....	.....	.....
Saw mills and products .....	.....	399,435	1,198,928	.....	.....	.....	.....
Naval stores, turpentine and rosin	.....	90,375	174,835	.....	.....	.....	.....
Mining (Phosphates) .....	249,600	499,200	1,497,600	.....	.....	.....	.....
Planing mills and novelty works.	.....	221,850	530,800	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAOE EARNERS; TOTAL WAOES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
HOLMES—				
Total County .....	33	\$ 292,760	589	\$ 316,140
Saw and Planing mill products.....	8	164,300	306	182,220
Naval stores, turpentine resin.....	17	124,500	269	131,400
Blacksmithing and repairing.....	4	760	4	1,000
Gin and grist mills and products.....	3	3,050	9	1,320
Harness and shoe repairing.....	1	150	1	200



TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
HOLMES—Continued.								
Total County .....	589	\$ 316,140	...	\$ .....	...	...	714	491
Saw and Planing mill products .....	306	182,220	...	...	...	...	349	264
Naval stores, turpentine resin .....	269	131,400	...	...	...	...	316	220
Blacksmithing and repairing .....	4	1,000	...	...	...	...	8	4
Gin and grist mills and products .....	9	1,320	...	...	...	...	10	5
Harness and shoe repairing .....	1	200	...	...	...	...	1	1

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
HOLMES—Continued.							
Total County .....	.....	\$ 456,200	\$ 662,860	30,000	.....	1,800	.....
Saw and Planing mill products..	.....	280,800	427,440	.....	.....	.....	.....
Naval stores, turpentine resin....	.....	170,800	225,300	.....	.....	.....	.....
Blacksmithing and repairing....	.....	2,860	5,820	.....	.....	.....	.....
Gin and grist mills and products.	.....	1,650	4,000	30,000	.....	1,800	.....
Harness and shoe repairing.....	.....	150	400	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
JACKSON.				
Total County .....	158	\$ 492,415	979	\$ 215,783
Saw mills and products.....	23	53,500	164	33,900
Naval stores, turpentine, resin.....	24	320,400	525	126,000
Cooperage and wood repair shops.....	39	6,000	39	9,500
Planing mills .....	4	3,750	13	2,600
Ginneries and products.....	15	58,000	72	9,740
Blacksmithing and repair shops.....	16	1,950	19	2,850
Shingle and stave manufacture.....	6	1,800	14	2,400
Syrup manufacture .....	2	7,500	16	1,200
Grist mills and products.....	13	7,115	27	3,718
Miscellaneous special industries.....	16	32,400	90	23,875

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
JACKSON—Continued.								
Total County .....	979	\$ 215,783	...	\$ .....	...	\$ .....	1,069	53
Saw mills and products.....	164	33,900	...	.....	...	.....	164	82
Naval stores, turpentine, resin.....	525	126,000	...	.....	...	.....	607	215
Cooperage and wood repair shops.....	39	9,500	...	.....	...	.....	39	39
Planing mills .....	13	2,600	...	.....	...	.....	13	9
Ginneries and products.....	72	9,740	...	.....	...	.....	72	35
Blacksmithing and repair shops.....	19	2,850	...	.....	...	.....	19	19
Shingle and stave manufacture.....	14	2,400	...	.....	...	.....	14	7
Syrup manufacture .....	16	1,200	...	.....	...	.....	16	16
Grist mills and products.....	27	3,718	...	.....	...	.....	27	15
Miscellaneous special industries.....	90	23,875	...	.....	...	.....	98	76

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed
JACKSON—Continued.							
Total County .....		*	*	7,486,000	.....	449,160	.....
Saw mills and products.....		*	*	.....	.....	.....	.....
Naval stores, turpentine, resin...		*	*	.....	.....	.....	.....
Cooperage and wood repair shops		*	*	.....	.....	.....	.....
Planing mills .....		*	*	.....	.....	.....	.....
Ginneries and products.....		*	*	7,486,000	.....	449,160	.....
Blacksmithing and repair shops..		*	*	.....	.....	.....	.....
Shingle and stave manufacture..		*	*	.....	.....	.....	.....
Syrup manufacture .....		*	*	.....	.....	.....	.....
Grist mills and products.....		*	*	.....	.....	.....	.....
Miscellaneous special industries..		*	*	.....	.....	.....	.....

\*Information refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES: AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
JEFFERSON—				
Total County .....	388	\$ 567,780	1,998	\$ 198,427
Syrup manufacture .....	282	8,945	1,160	6,277
Saw mills and products .....	25	422,800	426	111,650
Naval stores, turpentine and resin .....	6	60,500	200	49,000
Ginneries and products .....	18	32,500	83	15,000
Grist mills and products .....	23	10,425	45	4,500
Blacksmithing and repairing .....	19	3,860	25	3,700
Planing lathe and shingle mills .....	4	9,400	32	4,700
Miscellaneous special industries .....	11	19,350	27	3,600

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
JEFFERSON—Continued.								
Total County .....	1,998	\$ 198,427	...	\$ .....	...	\$ .....	2,063	1,784
Syrup manufacture .....	1,160	6,277	...	...	...	...	1,200	1,137
Saw mills and products.....	426	111,650	...	...	...	...	451	309
Naval stores, turpentine and resin.....	200	49,000	...	...	...	...	200	180
Ginneries and products.....	83	15,000	...	...	...	...	83	59
Grist mills and products.....	45	4,500	...	...	...	...	45	33
Blacksmithing and repairing.....	25	3,700	...	...	...	...	25	20
Planing lathe and shingle mills.....	32	4,700	...	...	...	...	32	25
Miscellaneous special industries.....	27	3,600	...	...	...	...	27	21

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gm this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gm this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
JEFFERSON—Continued.							
Total County .....	.....	*	*	2,970,000	460,000	168,500	146,000
Syrup manufacture .....	.....	*	*	.....	.....	.....	.....
Saw mills and products.....	.....	*	*	.....	.....	.....	.....
Naval stores, turpentine and resin .....	.....	*	*	.....	.....	.....	.....
Ginneries and products.....	.....	*	*	2,970,000	460,000	168,500	146,000
Grist mills and products.....	.....	*	*	.....	.....	.....	.....
Blacksmithing and repairing.....	.....	*	*	.....	.....	.....	.....
Planing lathe and shingle mills..	.....	*	*	.....	.....	.....	.....
Miscellaneous special industries..	.....	*	*	.....	.....	.....	.....

\*—Information refused.



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
LAFAYETTE—				
Total County .....	27	407,000	353	139,850
Saw mills and products.....	2	4,500	10	3,000
Naval stores, turpentine and rosin.....	11	375,000	290	129,000
Ginneries and products .....	9	16,000	38	2,650
Blacksmithing and repair shops.....	4	5,500	11	4,000
Ice manufacture .....	1	6,000	4	1,200

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
LAFAYETTE.—Continued.								
Total County .....	348	137,850	...	.....	5	1,500	400	308
Saw mills and products .....	10	3,000	...	.....	...	.....	10	10
Naval stores, turpentine and rosin .....	285	12,850	...	.....	5	1,500	337	245
Ginneries and products .....	38	2,650	...	.....	...	.....	38	38
Blacksmithing and repair shops .....	11	4,000	...	.....	...	.....	11	11
Ice manufacture .....	4	1,200	...	.....	...	.....	4	4

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
LAFAYETTE.—Continued.							
Total County .....	.....	179,100	695,860	.....	51,600	.....	30,720
Saw mills and products.....	.....	5,000	7,000	.....	.....	.....	.....
Naval stores, turpentine and rosin .....	.....	156,900	610,000	.....	.....	.....	.....
Ginneries and products .....	.....	12,700	66,160	.....	51,600	.....	30,720
Blacksmithing and repair shops..	.....	3,500	10,200	.....	.....	.....	.....
Ice manufacture .....	.....	1,000	2,500	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
LAKE—				
Total County .....	22	\$ 173,200	207	\$ 80,185
Saw mills and products.....	2	90,000	100	36,000
Wagon manufacture and repair works .....	2	3,000	4	2,400
Naval stores, turpentine and resin.....	1	7,000	20	4,875
Machine, boat building and repair works .....	3	5,950	8	5,100
Brick manufacture .....	2	30,000	33	11,900
Millinery and women's tailoring.....	3	1,000	5	1,275
Ice fuel and bottling works.....	2	12,150	12	6,260
Miscellaneous special industries.....	7	24,100	25	12,375

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
LAKE—Continued.								
Total County .....	196	\$ 77,810	7	\$ 1,475	4	\$ 900	247	133
Saw mills and products.....	100	36,000	...	.....	...	.....	100	50
Wagon manufacture and repair works .....	4	2,400	...	.....	...	.....	10	4
Naval stores, turpentine and resin.....	20	4,875	...	.....	...	.....	20	15
Machine, boat building and repair works....	8	5,100	...	.....	...	.....	18	5
Brick manufacture .....	32	11,450	...	.....	1	450	35	30
Millinery and women's tailoring.....	.....	.....	5	1,275	...	.....	5	5
Ice fuel and bottling works.....	10	6,060	...	.....	2	200	12	7
Miscellaneous special industries.....	22	11,925	2	200	1	250	47	17

TABLE NO. 4—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Gleaneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gln this year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
LAKE—Continued.							
Total County .....		\$ 146,865	\$ 221,100				
Saw mills and products.....		75,500	95,000				
Wagon manufacture and repair works .....		2,800	9,000				
Naval stores, turpentine and resin .....		5,000	10,000				
Machine, boat building and repair works .....		5,900	10,800				
Brick manufacture .....		19,200	42,000				
Millinery and women's tailoring..		23,925	30,400				
Ice fuel and bottling works.....		3,600	5,400				
Miscellaneous special industries..		10,940	18,500				

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
LEE—				
Total County .....	64	378,050	620	166,750
Saw mills, novelty works and products .....	3	4,200	9	2,700
Building, contracting and repairing .....	12	1,950	35	15,050
Canneries and products .....	4	60,750	207	41,400
Boat building and machine repairing .....	7	18,025	28	17,500
Fish packing houses .....	8	11,300	23	4,600
Fruit packing houses .....	2	80,000	230	41,000
Electric power and repair works.....	4	40,000	23	13,800
Ice manufacture .....	2	125,000	18	10,800
Bakeries and products .....	4	2,600	6	2,800

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
LEE.—Continued.				
Blacksmithing and repairing .....	3	2,575	6	2,400
Miscellaneous, special industries.....	15	31,650	35	14,700



TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
LEE.—Continued.								
Total County .....	620	166,750	...	.....	...	.....	833	304
Saw mills, novelty works and products..	9	2,700	...	.....	...	.....	9	8
Building, contracting and repairing.....	35	15,050	...	.....	...	.....	50	20
Canneries and products .....	207	41,400	...	.....	...	.....	250	53
Boat building and machine repairing.....	28	17,500	...	.....	...	.....	32	19
Fish packing houses .....	23	4,600	...	.....	...	.....	28	13
Fruit packing houses .....	730	41,000	...	.....	...	.....	375	120
Electric power and repair works.....	23	13,800	...	.....	...	.....	23	23
Ice manufacture .....	18	10,800	...	.....	...	.....	18	18
Bakeries and products .....	6	2,800	...	.....	...	.....	6	6

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
LEE.—Continued.								
Blacksmithing and repairing .....	6	2,400	...	.....	...	.....	6	6
Miscellaneous, special industries.....	35	14,700	...	.....	...	.....	36	18

TABLE NO. 4—COST OF MATERIAL USED; VALUE OF PRODUCTS.— *Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
LEE.—Continued.							
Total County .....	.....	460,275	699,770	.....	.....	.....	.....
Saw mills, novelty works and products .....	.....	12,000	19,000	.....	.....	.....	.....
Building, contracting and repair- ing .....	.....	84,700	111,325	.....	.....	.....	.....
Canneries and products .....	.....	18,925	54,850	.....	.....	.....	.....
Boat building and machine repair- ing .....	.....	46,700	73,200	.....	.....	.....	.....
Fish packing houses .....	.....	38,900	69,500	.....	.....	.....	.....
Fruit packing houses .....	.....	137,750	167,500	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this G'n this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this G'n this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
LEE.—Continued.							
Electric power and repair works.	.....	35,500	61,000	.....	.....	.....	.....
Ice manufacture .....	.....	16,000	34,000	.....	.....	.....	.....
Bakeries and products .....	.....	4,550	8,375	.....	.....	.....	.....
Blacksmithing and repairing ....	.....	4,800	9,950	.....	.....	.....	.....
Miscellaneous, special industries.	.....	60,450	91,070	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES: AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
LEON—				
Total County .....	33	\$ 200,550	439	\$ 107,800
Saw mills and products.....	5	57,500	58	38,300
Naval stores, turpentine and resin.....	7	39,500	315	41,000
Blacksmithing and repairing.....	9	2,600	14	4,600
Grist mills and products.....	4	1,950	5	900
Ice manufacture .....	1	25,000	12	5,000
Cotton seed oil manufacture.....	1	70,000	26	13,000
Millinery shops .....	2	3,000	4	2,500
General repair shops.....	4	1,000	5	2,500

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
LEON—Continued.								
Total County .....	439	\$ 107,800	...	\$	...	\$	648	310
Saw mills and products.....	58	38,300	...		...		106	40
Naval stores, turpentine and resin.....	315	41,000	...		...		445	233
Blacksmithing and repairing.....	14	4,600	...		...		20	12
Grist mills and products.....	5	900	...		...		7	4
Ice manufacture .....	12	5,000	...		...		21	6
Cotton seed oil manufacture.....	26	13,000	...		...		35	6
Millinery shops .....	4	2,500	...		...		7	4
General repair shops.....	5	2,500	...		...		7	5

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
LEON—Continued.							
Total County .....	.....	*	*	.....	.....	.....	.....
Saw mills and products.....	.....	*	*	.....	.....	.....	.....
Naval stores, turpentine and resin .....	.....	*	*	.....	.....	.....	.....
Blacksmithing and repairing.....	.....	*	*	.....	.....	.....	.....
Grist mills and products.....	.....	*	*	.....	.....	.....	.....
Ice manufacture .....	.....	*	*	.....	.....	.....	.....
Cotton seed oil manufacture....	.....	*	*	.....	.....	.....	.....
Millinery shops .....	.....	*	*	.....	.....	.....	.....
General repair shops.....	.....	*	*	.....	.....	.....	.....

\*—Information refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establish- ments Reporting.	Capital Invested (in- cluding lands, build- ings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
LEVY—				
Total County .....	60	1,197,487	1,494	661,535
Saw mills and products .....	5	367,400	198	94,260
Naval stores, turpentine and rosin .....	3	327,500	595	278,400
Blacksmith and wheelwright .....	8	9,300	12	8,740
Irrigation plants .....	18	41,600	31	4,300
Building and contracting .....	3	1,150	3	2,420
Fish and oyster packing .....	6	24,600	130	84,060
Fibre manufacture (Palmetto) .....	2	42,000	40	18,250
Cedar manufacture .....	2	8,550	100	40,505
Cypress lumber and shingle manufacture .....	1	360,262	350	120,000



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
LEVY.—Continued.				
Fruit and vegetable canneries.....	6	825	20	1,600
Miscellaneous, special industries.....	6	14,300	15	9,000

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
LEVY.—Continued.								
Total County .....	1,289	583,846	79	21,339	126	55,350	1,966	1,092
Saw mills and products .....	180	88,260	15	5,400	3	600	244	139
Naval stores, turpentine and rosin .....	490	228,000	25	4,000	80	46,400	870	455
Blacksmith and wheelwright .....	12	8,740	...	...	...	...	12	12
Irrigation plants .....	31	4,300	...	...	...	...	31	31
Building and contracting .....	3	2,420	...	...	...	...	13	3
Fish and oyster packing .....	130	84,060	...	...	...	...	173	82
Fibre manufacture (Palmetto) .....	34	15,550	6	2,700	...	...	66	10
Cedar manufacture .....	54	28,616	28	7,239	18	3,650	108	78
Cypress lumber and shingle manufacture....	339	114,900	1	1,500	10	3,600	400	250

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
LEVY.—Continued.								
Fruit and vegetable canneries.....	2	300	4	500	14	800	30	20
Miscellaneous, special industries.....	14	8,700	...	.....	1	300	19	12

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
LEVY.—Continued.							
Total County .....		332,131	573,525				
Saw mills and products .....		68,700	133,000				
Naval stores, turpentine and rosin .....		•	•				
Blacksmith and wheelwright .....		10,675	20,200				
Irrigation plants .....							
Building and contracting .....		4,500	11,100				
Fish and oyster packing .....		•	•				
Fibre manufacture (Palmetto) .....		•	•				
Cedar manufacture .....		60,890	116,800				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
LEVY.—Continued.							
Cypress lumber and shingle man- ufacture .....	.....	169,866	243,975	.....	.....	.....	.....
Fruit and vegetable canneries....	.....	*	*	.....	.....	.....	.....
Miscellaneous, special industries..	.....	17,500	48,450	.....	.....	.....	.....

\*—Information refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
LIBERTY—				
Total County .....	37	\$ 926,850	1,782	588,729
Saw mills and products.....	12	378,800	755	303,095
Naval stores, turpentine and resin.....	20	532,500	996	275,597
Ginneries and products.....	2	1,500	2	237
Miscellaneous special industries.....	3	14,050	29	9,770

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
LIBERTY—Continued.								
Total County .....	1,756	\$ 584,609	...	\$ .....	26	\$4,120	2,072	1,555
Saw mills and products.....	740	300,095	...	.....	15	3,000	806	662
Naval stores, turpentine and resin.....	986	274,597	...	.....	10	1,000	1,235	862
Ginneries and products.....	2	267	...	.....	...	.....	2	2
Miscellaneous special industries.....	28	9,650	...	.....	1	120	29	29

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
LIBERTY—Continued.							
Total County .....	.....	\$ 376,338	\$ 1,229,825	555,000	.....	5,155	.....
Saw mills and products.....	.....	193,395	547,580	.....	.....	.....	.....
Naval stores, turpentine and resin .....	.....	171,028	654,650	.....	.....	.....	.....
Ginneries and products.....	.....	125	450	555,000	.....	5,155	.....
Miscellaneous special industries .	.....	11,790	27,145	.....	.....	.....	.....



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
MADISON—				
Total County .....	100	1,534,955	2,094	371,599
Saw and shingle combination mills .....	36	728,675	783	144,717
Naval stores, turpentine and rosin .....	28	598,000	1,080	171,490
Ginneries and products .....	15	143,135	137	29,002
Blacksmithing and wheelwright .....	7	2,350	10	3,959
Grist mills and products .....	8	3,500	12	1,009
Electric power works .....	1	30,000	13	6,185
Planing mills .....	3	28,570	55	14,000
Miscellaneous special industries .....	2	725	4	1,237

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
MADISON.—Continued.								
Total County .....	2,094	371,599	...	.....	...	.....	2,506	1,406
Saw and shingle combination mills .....	783	144,717	...	.....	...	.....	905	515
Naval stores, turpentine and rosin .....	1,080	171,490	...	.....	...	.....	1,300	774
Ginneries and products .....	137	29,002	...	.....	...	.....	197	50
Blacksmithing and wheelwright .....	10	3,959	...	.....	...	.....	11	7
Grist mills and products .....	12	1,009	...	.....	...	.....	13	9
Electric power works .....	13	6,185	...	.....	...	.....	19	10
Planing mills .....	55	14,000	...	.....	...	.....	55	38
Miscellaneous special industries .....	4	1,237	...	.....	...	.....	6	3

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
MADISON.—Continued.							
Total County .....	.....	223,199	313,452	253,990	4,502,020	63,245	533,257
Saw and shingle combination mills .....	.....	*	*	.....	.....	.....	.....
Naval stores, turpentine and rosin .....	.....	*	*	.....	.....	.....	.....
Ginneries and products .....	.....	175,699	191,952	253,990	4,502,020	63,245	533,257
Blacksmithing and wheelwright .....	.....	4,000	12,000	.....	.....	.....	.....
Grist mills and products .....	.....	1,950	5,100	.....	.....	.....	.....
Electric power works .....	.....	18,000	45,850	.....	.....	.....	.....
Planing mills .....	.....	21,400	52,750	.....	.....	.....	.....
Miscellaneous special industries .....	.....	2,150	5,800	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
MANATEE—				
Total County .....	20	\$ 85,950	159	\$ 65,858
Saw mills and novelty works.....	3	12,900	18	9,200
Naval stores, turpentine and resin.....	2	19,000	65	18,938
Ice manufacture .....	4	37,800	36	30,000
Rice mills .....	2	800	6	450
Miscellaneous special single industries .....	9	15,450	35	12,270

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
MANATEE—Continued.								
Total County .....	158	\$ 65,658	...	\$ .....	1	\$ 200	176	112
Saw mills and novelty works.....	18	9,200	...	.....	...	.....	23	10
Naval stores, turpentine and resin.....	65	13,938	...	.....	...	.....	65	55
Ice manufacture .....	36	30,000	...	.....	...	.....	41	23
Rice mills .....	5	450	...	.....	...	.....	5	4
Miscellaneous special single industries ....	34	12,070	...	.....	1	200	42	20

TABLE NO. 5—SPECIFIED IN MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
MANATEE—Continued.							
Total County .....		\$ 38,435	\$ 111,080				
Saw mills and novelty works.....		2,700	6,900				
Naval stores, turpentine and resin .....		4,281	44,100				
Ice manufacture .....		22,954	44,900				
Rice mills .....		250	920				
Miscellaneous special single indus- tries .....		8,250	14,260				

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
MARION—				
Total County .....	69	\$ 1,997,300	3,862	\$ 486,346
Saw mills and products.....	15	542,000	803	109,435
Naval stores, turpentine and resin.....	26	631,800	2,063	242,199
Cigar manufacture .....	3	15,000	14	2,800
Crate and basket manufacture.....	3	102,000	172	20,230
Bottling works .....	3	6,000	19	2,965
Mining phosphate .....	5	332,000	449	57,317
Ice manufacture .....	2	70,000	30	5,100
Lime manufacturing works.....	3	127,000	191	24,160
Miscellaneous special industries .....	9	171,500	121	22,140

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
MARION—Continued.								
Total County .....	2,045	\$ 334,909	810	\$ 80,400	1,007	70,937	4,670	3,038
Saw mills and products.....	468	81,065	164	16,400	171	11,970	964	552
Naval stores, turpentine and resin.....	994	151,429	552	54,600	517	36,170	2,430	1,690
Cigar manufacture .....	14	2,800	...	.....	.....	.....	14	14
Crate and basket manufacture.....	79	12,640	36	3,600	57	3,990	190	135
Rotting works .....	19	2,965	...	.....	.....	.....	26	14
Mining phosphate .....	232	41,360	10	1,000	207	14,957	570	352
Ice manufacture .....	30	5,100	...	.....	.....	.....	40	21
Lime manufacturing works.....	88	15,410	48	4,800	55	3,850	265	148
Miscellaneous special single industries ....	121	22,140	...	.....	.....	.....	171	112



TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
MARION—Continued, Total County .....	157,500	\$ 2,881,619	\$ 4,666,373	16,000	185,000	345	13,000
Saw mills and products.....		1,653,000	1,881,000				
Naval stores, turpentine and resin .....		796,119	932,373				
Cigar manufacture .....		13,000	23,000				
Crute and basket manufacture...		23,400	270,000				
Bottling works .....		13,000	19,000				
Mining phosphate .....	157,500	855,000	1,152,000				
Ice manufacture .....		40,000	50,000				
Lime manufacturing works.....		124,000	145,500				
Miscellaneous special single indus- tries .....		153,500	193,500	16,000	185,000	345	13,000

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
MONROE—				
Total County .....	154	1,330,830	1,544	947,952
Cigar manufacture .....	60	1,243,550	1,326	882,216
Contracting and building.....	90	76,780	200	51,498
General repair works .....	4	10,500	18	14,238

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
MONROE.—Continued.								
Total County .....	1,321	875,471	221	73,273	1	208	2,386	1,328
Cigar manufacture .....	1,104	869,943	221	73,273	...	...	2,130	1,123
Contracting and building .....	200	51,498	...	...	...	...	237	188
General repair works .....	17	15,030	...	...	1	208	19	17

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
MONROE.—Continued.							
Total County .....	.....	2,208,358	3,724,611	.....	.....	.....	.....
Cigar manufacture .....	.....	2,087,590	3,518,331	.....	.....	.....	.....
Contracting and building.....	.....	94,398	161,565	.....	.....	.....	.....
General repair works .....	.....	26,370	44,715	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
NASSAU—				
Total County .....	39	292,000	414	135,150
• Saw mills and products .....	16	92,500	121	45,600
Naval stores, turpentine and rosin .....	15	149,000	216	69,000
Soft drinks manufacture and bottling works .....	2	15,000	6	2,100
Miscellaneous, special single industries .....	6	35,500	71	18,450

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
NASSAU.—Continued.								
Total County .....	414	135,150	...	.....	...	.....	591	248
Saw mills and products .....	121	45,600	...	.....	...	.....	192	68
Naval stores, turpentine and rosin .....	216	69,000	...	.....	...	.....	285	140
Soft drinks manufacture and bot. ....	6	2,100	...	.....	...	.....	16	3
Miscellaneous, special single in .....	71	18,450	...	.....	...	.....	98	37

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
NASSAU.—Continued.							
Total County .....		103,700	366,650				
Saw mills and products .....		37,600	113,900				
Naval stores, turpentine and rosin .....		50,000	201,500				
Soft drinks manufacture and bot- tling works .....		1,300	4,500				
Miscellaneous, special single in- dustries .....		14,800	46,750				

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ORANGE—				
Total County .....	116	\$ 2,400,150	2,334	\$ 1,020,579
Saw mills and products.....	12	172,000	214	82,500
Naval stores, turpentine and resin.....	17	523,000	623	224,300
Packing houses (fruit) .....	21	135,800	534	162,700
Blacksmithing and repairing.....	9	11,000	20	15,800
Machine and automobile repair works.....	9	271,000	268	187,639
Crate manufacture and novelty works.....	5	317,000	375	171,000
Men's tailoring .....	6	2,200	11	5,700
Cement and artificial stone manufacture.....	5	8,600	21	9,800



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ORANGE—Continued.				
Ice manufacture, water and electric power work.....	6	749,500	86	56,600
Publishing and job printing.....	6	24,400	23	16,950
Fertilizer manufacture .....	2	80,000	25	12,500
Plumbing and repairing.....	5	37,050	42	30,400
Bottling works .....	3	13,500	8	4,600
Carriage and wagon manufacture.....	2	21,600	13	9,840
Miscellaneous special single industries.....	8	33,500	71	30,250

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ORANGE—Continued.								
Total County .....	2,295	\$1,015,289	17	\$ 3,840	24	\$1,450	3,240	1,438
Saw mills and products.....	214	82,500	...	.....	...	.....	265	182
Naval stores, turpentine and resin.....	623	224,300	...	.....	...	.....	784	502
Packing houses (fruit) .....	526	160,700	8	2,000	...	.....	983	112
Blacksmithing and repairing.....	20	15,800	...	.....	...	.....	34	15
Machine and automobile repair works.....	268	187,639	...	.....	...	.....	293	245
Crate manufacture and novelty works.....	352	169,700	...	.....	23	1,300	438	150
Men's tailoring .....	11	5,700	...	.....	...	.....	16	10
Cement and artificial stone manutire.....	21	9,800	...	.....	...	.....	31	13
Ice manufacture, water and electric pow. wks.	86	56,600	...	.....	...	.....	119	76

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ORANGE—Continued.								
Publishing and job printing.....	21	15,200	3	1,600	1	150	41	20
Fertilizer manufacture .....	25	12,500	...	.....	...	.....	50	4
Plumbing and repairing.....	42	30,400	...	.....	...	.....	25	29
Bottling works .....	8	4,600	...	.....	...	.....	13	5
Carriage and wagon manufacture.....	13	9,840	...	.....	...	.....	18	10
Miscellaneous special single industries.....	65	30,010	6	240	...	.....	30	65

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
ORANGE—Continued.							
Total County .....		\$ 1,767,540	\$ 2,498,000				
Saw mills and products .....		173,600	240,300				
Naval stores, turpentine and resin .....		338,400	530,500				
Packing houses (fruit) .....		263,200	395,900				
Blacksmithing and repairing .....		25,800	57,300				
Machine and automobile repair works .....		157,200	206,600				
Crate manufacture and novelty works .....		283,000	375,000				
Men's tailoring .....		8,700	15,300				

TABLE NO. 4—COST OF MATERIAL USED; VALUE OF PRODUCTS—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products -- Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea-land Cotton ginned at this Gln this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea-land Cotton Seed.
ORANGE—Continued.							
Cement and artificial stone manufacture .....		22,700	36,100				
Ice manufacture, water and electric power works .....		114,600	171,800				
Publishing and job printing .....		30,000	43,800				
Fertilizer manufacture .....		203,000	231,000				
Plumbing and repairing .....		46,900	59,100				
Bottling works .....		14,200	20,000				
Carriage and wagon manufacture .....		20,240	29,000				
Miscellaneous special single industries .....		66,000	86,300				

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
<b>PALM BEACH—</b>				
Total County .....	108	426,225	824	374,415
General contracting, building and repairing .....	34	54,600	320	135,116
Fish packing houses .....	15	99,650	252	90,170
Bakeries and confectionery manufacture .....	6	9,150	20	9,666
Blacksmith and machine shops .....	8	17,600	26	18,682
Artificial stone, cement and brick manufacture .....	5	11,300	28	8,635
Plumbing, sheet metal and repair works .....	6	8,400	47	28,965
Publishing and job printing .....	3	29,407	22	16,740
Automobile and bicycle repair shops .....	4	15,300	11	7,340
Watch making and repairing .....	4	2,600	5	3,000

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
PALM BEACH.—Continued.				
Boat building and repairing.....	5	19,000	14	10,276
Electric power plants .....	12	128,500	24	19,600
Mens' tailoring .....	3	1,250	6	2,025
Womens' tailoring and millinery shops .....	12	600	5	1,600
Miscellaneous, special single industries .....	11	28,668	44	22,600

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Un- der 16 Years.		Greatest No. Employed at Any One Time Dur- ing Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
PALM BEACH.—Continued.								
Total County .....	808	368,195	16	6,200	...	...	1,315	455
General contracting, building and repairing.	320	135,116	...	...	...	...	527	163
Fish packing houses .....	252	90,170	...	...	...	...	383	115
Bakeries and confectionery manufacture....	14	7,446	6	2,200	...	...	29	15
Blacksmith and machine shops .....	25	18,082	1	600	...	...	36	18
Artificial stone, cement and brick manufact- ure .....	28	8,635	...	...	...	...	46	16
Plumbing, sheet metal and repair works....	47	28,965	...	...	...	...	66	26
Publishing and job printing .....	21	16,440	1	300	...	...	38	19
Automobile and bicycle repair shops .....	11	7,340	...	...	...	...	15	10



TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
PALM BEACH.—Continued.								
Watch making and repairing.....	4	2,500	1	500	...	...	7	4
Boat building and repairing.....	14	10,276	...	...	...	...	29	7
Electric power plants .....	24	19,600	...	...	...	...	47	22
Mens' tailoring .....	6	2,025	...	...	...	...	10	5
Womens' tailoring and millinery shops ...	...	...	5	1,600	...	...	7	3
Miscellaneous, special single industries...	42	21,600	2	1,000	...	...	75	32

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
PALM BEACH.—Continued.							
Total County .....	.....	•	•	.....	.....	.....	.....
General contracting, building and repairing .....	.....	•	•	.....	.....	.....	.....
Fish packing houses .....	.....	•	•	.....	.....	.....	.....
Bakeries and confectionery manufacture .....	.....	•	•	.....	.....	.....	.....
Blacksmith and machine shops ..	.....	•	•	.....	.....	.....	.....
Artificial stone, cement and brick manufacture .....	.....	•	•	.....	.....	.....	.....
Plumbing, sheet metal and repair works .....	.....	•	•	.....	.....	.....	.....

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
PALM BEACH.—Continued.							
Publishing and job printing .....	.....	*	*	.....	.....	.....	.....
Automobile and bicycle repair shops .....	.....	*	*	.....	.....	.....	.....
Watch making and repairing.....	.....	*	*	.....	.....	.....	.....
Boat building and repairing.....	.....	*	*	.....	.....	.....	.....
Electric power plants .....	.....	*	*	.....	.....	.....	.....
Mens' tailoring .....	.....	*	*	.....	.....	.....	.....
Womens' tailoring and millinery shops .....	.....	*	*	.....	.....	.....	.....
Miscellaneous, special single industries .....	.....	*	*	.....	.....	.....	.....

\*—Information refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
PASCO—				
Total County .....	123	\$ 1,384,392	1,255	\$ 477,091
Saw mills and products.....	14	962,975	445	249,076
Naval stores, turpentine and resin.....	12	258,500	410	171,740
Cane syrup mills.....	55	2,921	146	7,990
Irrigation and water pumping plants.....	12	17,976	19	3,920
Blacksmith and machine shops.....	7	8,460	44	4,700
Publishing and job printing.....	2	3,500	6	2,550
Electrical light and power works.....	1	20,000	6	2,200
Bakeries and confectionery manufacture.....	3	1,650	4	850
Miscellaneous special industries.....	17	108,410	175	34,065

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
PASCO—Continued.								
Total County .....	1,253	\$ 477,091	...	\$ .....	...	\$ .....	1,575	748
Saw mills and products.....	445	249,076	...	.....	...	.....	519	162
Naval stores, turpentine and resin.....	410	171,740	...	.....	...	.....	575	335
Cane syrup mills.....	146	7,990	...	.....	...	.....	176	115
Irrigation and water pumping plants.....	19	3,920	...	.....	...	.....	21	16
Blacksmith and machine shops.....	44	4,700	...	.....	...	.....	41	19
Publishing and job printing.....	6	2,550	...	.....	...	.....	6	3
Electrical light and power works.....	6	2,200	...	.....	...	.....	8	3
Bakeries and confectionery manufacture....	4	850	...	.....	...	.....	4	4
Miscellaneous special industries.....	175	34,065	...	.....	...	.....	222	91

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
PASCO—Continued.							
Total County .....	.....	*	*	.....	.....	.....	.....
Saw mills and products.....	.....	*	*	.....	.....	.....	.....
Naval stores, turpentine and resin.....	.....	*	*	.....	.....	.....	.....
Cane syrup mills.....	.....	*	*	.....	.....	.....	.....
Irrigation and water pumping plants .....	.....	*	*	.....	.....	.....	.....
Blacksmith and machine shops...	.....	*	*	.....	.....	.....	.....
Publishing and job printing.....	.....	*	*	.....	.....	.....	.....
Electrical light and power works.	.....	*	*	.....	.....	.....	.....

\*Information Refused.

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
PASCO—Continued.							
Bakeries and confectionery manu- facture .....	.....	*	*	.....	.....	.....	.....
Miscellaneous special industries.	.....	*	*	.....	.....	.....	.....

\*—Information refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
PINELLAS—				
Total County .....	70	1,044,100	2,014	842,564
Saw mills and products .....	6	46,500	79	42,866
Naval stores, turpentine and rosin .....	1	10,000	40	20,000
Artificial stone and cement works .....	8	68,900	113	65,552
Blacksmith and machine repair works .....	17	10,200	11	7,310
Electric light, power and ice plants combined .....	4	205,500	30	22,160
Cigar and cigarette manufacture .....	7	32,000	46	13,520
Sponge fishing and packing .....	2	350,000	1,500	544,000
Marine ways .....	3	16,500	13	8,592
Publishing and job printing .....	3	38,500	36	26,120



TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES: AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
PINELLAS.—Continued.				
Plumbing and repairing .....	7	4,450	13	9,864
Auto repair shops .....	2	51,000	13	6,720
Novelty works .....	2	108,000	67	47,460
Miscellaneous, special industries.....	8	102,550	44	28,400

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
PINELLAS.—Continued.								
Total County .....	2,014	842,564	...	.....	...	.....	2,464	1,647
Saw mills and products .....	79	42,866	...	.....	...	.....	96	63
Naval stores, turpentine and rosin .....	40	20,000	...	.....	...	.....	45	35
Artificial stone and cement works .....	113	65,552	...	.....	...	.....	176	71
Blacksmith and machine repair works....	11	7,310	...	.....	...	.....	16	9
Electric light, power and ice plants combined.	39	22,160	...	.....	...	.....	59	36
Cigar and cigarette manufacture.....	46	13,520	...	.....	...	.....	74	26
Sponge fishing and packing .....	1,500	544,000	...	.....	...	.....	1,750	1,250
Marine ways .....	13	8,592	...	.....	...	.....	36	10
Publishing and job printing.....	36	26,120	...	.....	...	.....	58	30

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
PINELLAS.—Continued.								
Plumbing and repairing .....	13	9,864	...	.....	...	.....	18	10
Auto repair shops .....	13	6,720	...	.....	...	.....	12	10
Novelty works .....	67	47,460	...	.....	...	.....	67	67
Miscellaneous, special industries.....	44	28,400	...	.....	...	.....	57	30

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
PINELLAS.—Continued.							
Total County .....		1,115,755	1,657,300				
Saw mills and products .....		99,546	129,000				
Naval stores, turpentine and rosin .....		45,000	60,000				
Artificial stone and cement works .....		80,784	158,200				
Blacksmith and machine repair works .....		11,000	17,300				
Electric light, power and ice plants combined .....		58,325	87,300				
Cigar and cigarette manufacture.. ..		21,500	99,000				
Sponge fishing and packing .....		605,000	800,000				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
PINELLAS.—Continued..							
Marine ways .....	.....	23,500	34,000	.....	.....	.....	.....
Publishing and job printing.....	.....	60,000	83,000	.....	.....	.....	.....
Plumbing and repairing .....	.....	18,000	31,500	.....	.....	.....	.....
Auto repair shops .....	.....	*	*	.....	.....	.....	.....
Novelty works .....	.....	52,500	77,500	.....	.....	.....	.....
Miscellaneous, special industries..	.....	40,600	80,500	.....	.....	.....	.....

\*—Information refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
POLK—				
Total County .....	68	\$ 7,043,553	3,299	\$ 3,050,605
Saw mills and products.....	5	113,300	208	176,200
Wagon manufacture.....	5	8,700	12	3,900
Naval stores, turpentine and resin.....	4	102,500	155	24,800
Blacksmith and machine repairing.....	6	8,500	9	3,900
Irrigation and water pumping plants.....	6	4,700	12	1,800
Cigar manufacture .....	5	7,000	28	12,500
Mining (phosphate) .....	13	6,500,000	2,575	2,725,000
Building and repair shops.....	4	44,300	43	8,250
Electric, water, power, ice and repair works combined.....	5	210,653	45	13,780

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
POLK—Continued.				
Artificial stone and cement manufacture.....	2	7,000	14	3,900
Bottling works .....	3	7,000	6	1,975
Miscellaneous special single industries.....	10	29,900	192	74,600

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
POLK—Continued.								
Total County .....	3,299	\$3,050,605	...	\$ .....	...	.....	3,675	2,614
Saw mills and products.....	208	176,200	...	.....	...	.....	260	164
Wagon manufacture .....	12	3,900	...	.....	...	.....	15	7
Naval stores, turpentine and resin.....	155	24,800	...	.....	...	.....	155	75
Blacksmith and machine repairing.....	9	3,900	...	.....	...	.....	9	9
Irrigation and water pumping plants.....	12	1,800	...	.....	...	.....	12	12
Cigar manufacture .....	28	12,500	...	.....	...	.....	40	16
Mining (phosphate) .....	2,575	\$2,725,000	...	.....	...	\$.....	2,800	2,200
Building and repair shops.....	43	8,250	...	.....	...	.....	48	22



TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AOES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number	Wages.	Average Number.	Wages.	Average Number.	Wages.		
POLK—Continued.								
Electric, water power, ice and repair works combined .....	45	13,780	...	.....	...	.....	50	24
Artificial stone and cement manufacture....	14	3,900	...	.....	...	.....	17	8
Bottling works .....	6	1,975	...	.....	...	.....	9	5
Miscellaneous special single industries.....	192	74,600	...	.....	...	.....	260	72

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
POLK—Continued.							
Total County .....	1,495,000	\$ 2,992,080	\$ 8,372,605				
Saw mills and products .....		178,800	265,009				
Wagon manufacture .....		6,500	15,800				
Naval stores, turpentine and resin .....		25,300	127,950				
Blacksmith and machine repairing .....		5,000	8,000				
Irrigation and water pumping plants .....							
Cigar manufacture .....		20,500	29,250				
Mining (phosphate) .....	1,495,000	2,496,000	7,488,000				
Building and repair shops .....		12,780	49,275				

TABLE NO. 5—SPECIFIED IN MATERIAL USED; VALUE OF PRODUCTS.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
POLK—Continued.							
Electric water power, ice and repair works combined.....	.....	43,200	64,980	.....	.....	.....	.....
Artificial stone and cement manufacture .....	.....	6,500	14,100	.....	.....	.....	.....
Bottling works .....	.....	12,000	23,650	.....	.....	.....	.....
Miscellaneous special single industries .....	.....	158,500	285,700	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
PUTNAM—				
Total County .....	51	2,150,266	1,533	537,595
Saw mills and products .....	4	1,119,541	565	236,000
Naval stores, turpentine and rosin .....	9	509,840	554	116,575
Novelty works, sash, doors and tank manufacture .....	3	271,000	188	92,410
Cross-tie manufacture .....	7	5,900	17	6,000
Machine shops, foundry and blacksmithing .....	7	25,800	28	22,100
Canneries and products .....	7	370	11	540
Artificial stone manufacture .....	2	20,700	11	2,300
Miscellaneous, special single industries .....	12	197,115	159	61,670

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
PUTNAM.—Continued.								
Total County .....	1,460	530,800	5	350	68	6,445	1,888	1,132
Saw mills and products .....	565	236,000	...	...	...	...	645	483
Naval stores, turpentine and rosin.....	539	114,795	2	160	13	1,620	705	360
Novelty works, sash, doors and tank manufacture .....	138	87,735	...	...	50	4,675	207	135
Cross-tie manufacture .....	17	6,000	...	...	...	...	68	14
Machine shops, foundry and black.....	28	22,100	...	...	...	...	32	13
Canneries and products .....	3	200	3	190	5	150	23	8
Artificial stone manufacture .....	11	2,300	...	...	...	...	13	5
Miscellaneous, special single industries...	159	61,670	...	...	...	...	195	94

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this G. in this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
PUTNAM.—Continued.							
Total County .....	18,600	1,023,458	1,453,736	.....	30,600	.....	1,848
Saw mills and products .....	.....	377,000	462,000	.....	.....	.....	.....
Naval stores, turpentine and rosin .....	.....	277,100	353,650	.....	.....	.....	.....
Novelty works, sash, doors and tank manufacture .....	.....	214,000	398,000	.....	.....	.....	.....
Cross-tie manufacture .....	.....	8,450	16,085	.....	.....	.....	.....
Machine shops, foundry and black- smithing .....	.....	41,800	68,900	.....	.....	.....	.....
Canneries and products .....	.....	778	1,332	.....	.....	.....	.....
Artificial stone manufacture .....	.....	3,375	5,807	.....	.....	.....	.....
Miscellaneous, special single in- dustries .....	18,600	100,955	147,962	.....	30,600	.....	1,848

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number: Wage Earners.	Total Wages.
SANTA ROSA—				
Total County .....	178	\$ 4,923,490	3,026	\$ 997,685
Saw mills and products.....	35	2,582,850	774	275,458
Naval stores, turpentine and resin.....	47	1,785,000	1,840	563,350
Ginneries and products.....	17	13,800	43	3,117
Grist mills and products.....	23	32,130	43	10,790
Blacksmithing and machine shops.....	10	58,960	57	39,100
Dry kilns and stave manufacture.....	15	108,050	66	30,630
Shingle manufacture .....	6	6,250	24	3,710
Planing mills and novelty works.....	6	183,000	118	43,670
Marine ways .....	5	28,600	16	8,760

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
SANTA ROSA—Continued.				
Publishing and job printing.....	2	8,350	4	2,950
Millinery and women's tailoring.....	3	12,000	4	1,350
Watch making and repairing.....	2	5,500	3	2,600
Miscellaneous special single industries.....	7	99,000	34	12,200



TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
SANTA ROSA—Continued.								
Total County .....	3,010	\$ 993,335	4	\$ 1,350	12	\$3,000	4,028	2,232
Saw mills and products.....	774	275,458	...	...	...	...	967	563
Naval stores, turpentine and resin.....	1,840	563,350	...	...	...	...	2,448	1,397
Ginneries and products.....	43	3,117	...	...	...	...	56	29
Grist mills and products.....	43	10,790	...	...	...	...	58	28
Blacksmithing and machine shops.....	57	39,100	...	...	...	...	74	44
Dry kilns and stave manufacture.....	66	30,630	...	...	...	...	160	42
Shingle manufacture .....	24	\$ 3,710	...	\$ .....	...	...	33	15
Planing mills and novelty works.....	108	41,170	...	...	10	2,500	149	70
Marine ways .....	16	8,760	...	...	...	...	25	10

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
SANTA ROSA—Continued.								
Publishing and job printing.....	4	2,950	...	.....	...	.....	7	2
Millinery and women's tailoring.....	...	.....	4	1,350	...	.....	4	4
Watch making and repairing.....	3	2,600	...	.....	...	.....	3	3
Miscellaneous special single industries.....	32	11,700	...	.....	2	500	44	25

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
SANTA ROSA—Continued.							
Total County .....		\$ 3,536,727	\$ 4,387,013	1,957,060		95,461	
Saw mills and products.....		1,064,020	1,419,221				
Naval stores, turpentine and resin .....		1,652,185	1,989,390				
Ginneries and products.....		18,102	24,482	1,957,060		95,461	
Grist mills and products.....		39,400	51,315				
Blacksmithing and machine shops .....		85,835	98,850				
Dry kilns and stave manufacture. ....		273,155	338,470				
Shingle manufacture .....		23,150	36,500				
Planing mills and novelty works. ....		\$ 275,350	\$ 294,900				
Marine ways .....		46,560	54,035				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginnsries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
SANTA ROSA—Continued.							
Publishing and job printing.....	.....	7,720	9,950	.....	.....	.....	.....
Millinery and women's tailoring...	.....	7,000	10,350	.....	.....	.....	.....
Watch making and repairing....	.....	3,850	5,870	.....	.....	.....	.....
Miscellaneous special single indus- tries .....	.....	40,400	53,680	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establish- ments Reporting.	Capital Invested (in- cluding lands, build- ings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ST. JOHNS—				
Total County .....	169	1,986,153	2,499	535,306
Saw mills and products .....	11	131,000	358	92,750
Naval stores, turpentine and rosin .....	32	589,200	1,091	147,400
Shingle manufacture .....	2	25,000	40	8,000
Barrell and crate manufacture .....	5	41,100	113	11,656
Building and repair shops .....	7	6,400	36	12,300
Blacksmithing, wheelwright and machine repair shops .....	8	15,350	33	14,400
Artificial stone and cement works .....	4	2,300	11	2,900
Novelty works .....	4	6,800	9	4,000
Art printing .....	7	6,300	16	8,200

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ST. JOHNS.—Continued.				
Publishing and job printing .....	3	109,200	113	33,750
Boat building and repairing .....	5	5,700	12	4,100
Shoe making and repair work .....	6	2,650	8	1,200
Watch making and repairing .....	3	1,060	3	1,400
Automobile and bicycle repair shops .....	16	48,000	28	9,300
Mens' tailoring and repair shops .....	12	5,500	24	7,450
Millinery and women's tailoring .....	7	12,700	19	5,700
Plumbing and repair work .....	8	27,750	26	10,350
Cigar manufacture .....	5	20,500	44	10,350
Miscellaneous, special industries .....	24	929,743	515	150,100

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ST. JOHNS.—Continued.								
Total County .....	2,475	533,206	14	850	10	1,250	2,632	1,546
Saw mills and products .....	358	92,750	...	...	...	...	388	245
Naval stores, turpentine and rosin .....	1,091	147,400	...	...	...	...	1,139	513
Shingle manufacture .....	40	8,000	...	...	...	...	50	20
Barrell and crate manufacture .....	113	11,656	...	...	...	...	121	59
Building and repair shops .....	36	12,300	...	...	...	...	51	18
Blacksmithing, wheelwright and machine repair shops .....	33	14,400	...	...	...	...	36	17
Artificial stone and cement works .....	11	2,900	...	...	...	...	11	7
Novelty works .....	9	4,000	...	...	...	...	9	9
Art printing .....	16	8,200	...	...	...	...	16	10

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAOES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ST. JOHNS.—Continued.								
Publishing and job printing .....	113	33,750	...	.....	...	.....	113	109
Boat building and repairing .....	12	4,100	...	.....	...	.....	12	8
Shoe making and repair work .....	8	1,200	...	.....	...	.....	7	7
Watch making and repairing .....	3	1,400	...	.....	...	.....	3	3
Automobile and bicycle repair shops .....	28	9,300	...	.....	...	.....	32	16
Mens' tailoring and repair shops .....	24	7,450	...	.....	...	.....	24	20
Millinery and women's tailoring .....	19	5,700	...	.....	...	.....	19	11
Plumbing and repair work .....	26	10,350	...	.....	...	.....	32	16
Cigar manufacture .....	40	9,800	4	550	...	.....	44	40
Miscellaneous, special industries .....	495	148,550	10	300	10	1,250	525	418



TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products—Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
ST. JOHNS.—Continued.							
Total County .....		*	*				
Saw mills and products .....		*	*				
Naval stores, turpentine and rosin .....		*	*				
Shingle manufacture .....		*	*				
Barrell and crate manufacture .....		*	*				
Building and repair shops .....		*	*				
Blacksmithing, wheelwright and machine repair shops .....		*	*				
Artificial stone and cement works .....		*	*				
Novelty works .....		*	*				
Art printing .....		*	*				

\*Information refused.

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom work and Repairing.)	No. Lbs. Lint Upland Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gln this Year.	No. Bushels Upland Cotton Seed.	No. Bushels Sea Island Cotton Seed.
ST. JOHNS.—Continued.							
Publishing and job printing .....	.....	*	*	.....	.....	.....	.....
Boat building and repairing .....	.....	*	*	.....	.....	.....	.....
Shoe making and repair work.....	.....	*	*	.....	.....	.....	.....
Watch making and repairing .....	.....	*	*	.....	.....	.....	.....
Automobile and bicycle repair shops .....	.....	*	*	.....	.....	.....	.....
Mens' tailoring and repair shops.	.....	*	*	.....	.....	.....	.....
Millinery and women tailoring ..	.....	*	*	.....	.....	.....	.....
Plumbing and repair work.....	.....	*	*	.....	.....	.....	.....
Cigar manufacture .....	.....	*	*	.....	.....	.....	.....
Miscellaneous, special industries..	.....	*	*	.....	.....	.....	.....

\*—Information refused.

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
ST. LUCIE—				
Total County .....	12	\$ 100,850	55	\$ 21,405
Ice manufacture .....	2	64,000	12	2,720
Preserve and jelly manufacture.. ..	4	6,600	24	6,525
Miscellaneous special single industries...	6	30,250	19	12,160

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
ST. LUCIE—Continued.								
Total County .....	55	\$ 21,405	...	\$ .....	...	\$ .....	68	18
Ice manufacture .....	12	2,720	...	.....	...	.....	25	4
Preserve and jelly manufacture.....	24	6,525	...	.....	...	.....	24	6
Miscellaneous special single industries.....	19	12,160	...	.....	...	.....	19	8

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products—Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
ST. LUCIE—Continued.							
Total County .....	.....	\$ 34,600	\$ 69,650	.....	.....	.....	.....
Ice manufacture .....	.....	12,000	33,640	.....	.....	.....	.....
Preserve and jelly manufacture..	.....	1,700	3,150	.....	.....	.....	.....
Miscellaneous special single indus- tries .....	.....	20,900	32,860	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES: AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
VOLUSIA—				
Total County .....	298	1,945,510	1,976	922,856
Saw mills and products .....	9	326,900	291	121,350
Naval stores, turpentine and rosin .....	17	563,000	740	268,950
Contract building, wood and repair work .....	38	34,850	218	114,800
Millinery and women's tailoring .....	22	9,500	30	10,250
Publishing and job printing .....	9	90,400	66	30,986
Blacksmith, machine and repair shops .....	10	6,550	15	7,750
Plumbing, tinning and repairing .....	13	23,700	35	28,650
Men's tailoring and repairing .....	20	7,540	28	16,600
Automobile and bicycle repair .....	28	104,900	61	50,260

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
VOLUSIA.—Continued.				
Shell mining .....	9	11,800	37	15,600
Shoemaking and repairing .....	16	4,200	18	5,350
Art printing .....	12	13,170	18	10,450
Bakeries and confectionery manufacture .....	14	18,500	24	11,600
Watch making and repairing .....	8	1,850	9	5,800
Electric power, water works and repairing .....	10	425,750	60	40,950
Packing houses (Fruit) .....	6	15,750	148	19,400
Artificial stone and cement works .....	7	7,650	26	16,500
Laundry and repairing .....	9	5,850	19	6,000
Novelty works .....	5	10,800	12	8,300

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
VOLUSIA.—Continued.				
Boat building and repairing .....	4	2,800	5	2,600
Miscellaneous, special single industries .....	32	260,050	116	63,850



TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
VOLUSIA.—Continued.								
Total County .....	1,883	829,896	73	26,850	2	240	2,610	1,366
Saw mills and products.....	291	121,350	...	.....	...	.....	397	224
Naval stores, turpentine and rosin.....	740	268,950	...	.....	...	.....	901	545
Contract building, wood and repair work..	218	114,800	...	.....	...	.....	322	122
Millinery and women's tailoring.....	9	2,700	21	8,550	...	.....	38	26
Publishing and job printing .....	49	25,436	17	5,550	...	.....	88	47
Blacksmith, machine and repair shops ....	15	7,750	...	.....	...	.....	15	15
Plumbing, tinning and repairing.....	35	28,650	...	.....	...	.....	45	24
Men's tailoring and repairing .....	28	16,600	...	.....	...	.....	43	23
Automobile and bicycle repair.....	59	50,010	...	.....	2	240	89	40

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
VOLUSIA.—Continued.								
Shell mining .....	37	15,600	...	.....	...	.....	50	16
Shoemaking and repairing .....	18	5,350	...	.....	...	.....	20	16
Art printing .....	11	6,100	7	4,350	...	.....	25	15
Bakeries and confectionery manufacture ...	21	10,900	3	700	...	.....	35	18
Watch making and repairing .....	9	5,800	...	.....	...	.....	9	9
Electric power, water works and repairing..	59	40,250	1	700	...	.....	81	48
Packing houses (Fruit) .....	125	18,400	5	1,000	...	.....	197	53
Artificial stone and cement works.....	26	16,500	...	.....	...	.....	29	8
Laundry and repairing .....	...	.....	19	6,000	...	.....	33	16
Novelty works .....	12	8,300	...	.....	...	.....	27	12

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
VOLUSIA.—Continued.								
Boat building and repairing .....	5	2,600	...	.....	...	.....	9	5
Miscellaneous, special single industries...	116	63,850	...	.....	...	.....	157	84

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gln this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gln this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
VOLUSIA.—Continued.							
Total County .....		1,338,435	2,781,620				
Saw mills and products.....		143,150	267,250				
Naval stores, turpentine and rosin .....		412,480	549,250				
Contract building, wood and re- pair work .....		406,160	833,700				
Millinery and women's tailoring..		12,200	32,300				
Publishing and job printing .....		30,000	88,500				
Blacksmith, machine and repair shops .....		8,100	24,000				
Plumbing, tinning and repairing.		44,250	87,700				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
VOLUSIA.—Continued.							
Men's tailoring and repairing . . . . .		14,350	45,500				
Automobile and bicycle repair . . . . .		29,625	136,800				
Shell mining . . . . .		16,350	60,950				
Shoemaking and repairing . . . . .		5,100	16,970				
Art printing . . . . .		3,600	23,400				
Bakeries and confectionery manu- facture . . . . .		32,800	70,000				
Watch making and repairing . . . . .		1,100	9,100				
Electric power, water works and repairing . . . . .		44,900	139,150				

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (Including Mill or Mine Supplies and Fuel.)	Value of Work (In- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this Year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
VOLUSIA.—Continued.							
Packing houses (Fruit) .....	.....	20,850	39,000	.....	.....	.....	.....
Artificial stone and cement works .....	.....	33,200	62,700	.....	.....	.....	.....
Laundry and repairing .....	.....	1,100	14,950	.....	.....	.....	.....
Novelty works .....	.....	12,150	29,700	.....	.....	.....	.....
Boat building and repairing .....	.....	1,950	5,800	.....	.....	.....	.....
Miscellaneous, special single in- dustries .....	.....	65,020	224,200	.....	.....	.....	.....

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
WAKULLA.				
Total County .....	23	\$ 520,423	561	\$ 177,550
Saw mills and products.....	2	4,500	25	5,800
Naval stores, turpentine and resin.....	12	513,473	520	165,600
Blacksmith and repair shops.....	5	1,200	7	3,300
Cooperage shops .....	2	150	3	1,150
Miscellaneous special single industries.....	2	1,100	6	1,700

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
WAKULLA—Continued.								
Total County .....	405	\$ 168,340	...	\$ .....	155	9,210	676	377
Saw mills and products.....	20	5,650	...	.....	4	150	35	18
Naval stores, turpentine and resin.....	369	150,540	...	.....	151	9,060	625	345
Blacksmith and repair shops.....	7	3,300	...	.....	...	.....	7	7
Cooperage shops .....	3	1,150	...	.....	...	.....	3	3
Miscellaneous special single industries.....	6	1,700	...	.....	...	.....	6	4



TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phosphate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
WAKULLA—Continued.							
Total County .....		\$ 178,450	\$ 262,750	500		225	
Saw mills and products.....		10,000	13,000				
Naval stores, turpentine and resin .....		165,000	240,000				
Blacksmith and repair shops.....		1,050	4,500				
Cooperage shops .....		300	1,500				
Miscellaneous special single industries .....		2,100	3,750	500		225	

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Establishments Reporting.	Capital Invested (including lands, buildings, improvements, machinery, cash.)	Average Number Wage Earners.	Total Wages.
WALTON—				
Total County .....	80	\$ 1,149,987	1,603	\$ 594,460
Saw mills and products.....	16	180,117	370	140,480
Naval stores,turpentine and resin.....	28	876,500	1,097	416,245
Planing mills and products.....	4	79,500	72	27,705
Grist mills and products.....	12	5,175	13	2,715
Ginneries and products.....	11	6,930	26	1,815
Blacksmith and repair shops.....	5	430	7	1,800
Carpentry, building and repairing.....	3	535	13	3,200
Miscellaneous special single industries.....	1	800	5	500

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 10 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number	Wages.	Average Number.	Wages.	Average Number.	Wages.		
WALTON—Continued.								
Total County .....	1,583	\$ 592,960	...	\$ .....	20	\$1,500	1,838	1,238
Saw mills and products.....	370	140,480	...	.....	...	.....	413	342
Naval stores,turpentine and resin.....	1,077	414,745	...	.....	20	1,500	1,259	775
Planing mills and products.....	72	27,705	...	.....	...	.....	85	63
Grist mills and products.....	13	2,715	...	.....	...	.....	13	13
Ginneries and products.....	26	1,815	...	.....	...	.....	28	26
Blacksmith and repair shops.....	7	1,800	...	.....	...	.....	8	7
Carpentry, building and repairing.....	13	3,200	...	.....	...	.....	27	7
Miscellaneous special single industries.....	5	500	...	.....	...	.....	5	5

TABLE NO. 5—SPECIFIED IN MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products -- Character of Ores Mined--Phosphate--Tons.	Cost of Material and Value of Products.		Glaneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (including Custom Work and Repairing.)	No. Lbs. Lint Up-land Cotton ginned at this Gin this Year.	No. Lbs. Lint Sea Island Cotton ginned at this Gin this Year.	No. Bushels Up-land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
WALTON—Continued.							
Total County .....		\$ 930,220	\$ 1,696,259	163,500		10,064	
Saw mills and products.....		207,625	486,220				
Naval stores,turpentine and resin .....		651,190	1,012,179				
Planing mills and products.....		47,175	148,850				
Grist mills and products.....		2,650	4,475				
Oinneries and products.....		2,100	5,230				
Blacksmith and repair shops.....		2,680	4,350	163,500		10,064	
Carpentry, building and repairing .....		4,650	18,780				
Miscellaneous special single industries .....		12,150	16,175				

TABLE NO. 5—SPECIFIED INDUSTRIES BY COUNTIES; AVERAGE NUMBER OF WAGE EARNERS; TOTAL WAGES PAID.—*Continued.*

SPECIFIED INDUSTRIES BY COUNTIES.	Number of Estab- lish- ments Reporting.	Capital Invested (in- cluding lands, build- ings, improvements, machinery, cash.)	Average Numbe- r Wage Earners.	Total Wages.
WASHINGTON—				
Total County .....	65	1,383,800	1,678	520,087
Saw mills and products .....	16	491,500	657	263,672
Naval stores, turpentine and rosin .....	28	846,000	990	250,465
Grist mills and products .....	11	4,800	11	1,700
Ginneries and products .....	4	39,000	14	1,850
Blacksmithing and repair shops .....	6	2,500	6	2,400

TABLE NO. 5—AVERAGE NUMBER WAGE EARNERS; SPECIFIED AGES; WAGES PAID.  
Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Men 16 Years and Over.		Women 16 Years and Over.		Children Under 16 Years.		Greatest No. Employed at Any One Time During Year in Industry.	Least No. Employed at Any One Time During the Year in Industry.
	Average Number.	Wages.	Average Number.	Wages.	Average Number.	Wages.		
WASHINGTON.—Continued.								
Total County .....	1,676	519,937	...	.....	2	150	2,058	1,167
Saw mills and products .....	655	263,522	...	.....	2	150	780	450
Naval stores, turpentine and rosin .....	990	250,465	...	.....	...	.....	1,239	687
Grist mills and products .....	11	1,700	...	.....	...	.....	11	11
Ginneries and products .....	14	1,850	...	.....	...	.....	16	13
Blacksmithing and repair shops .....	6	2,400	...	.....	...	.....	12	6

TABLE NO. 5—COST OF MATERIAL USED; VALUE OF PRODUCTS.—Continued.

SPECIFIED INDUSTRIES BY COUNTIES.	Mines and Mining Products — Character of Ores Mined—Phos- phate—Tons.	Cost of Material and Value of Products.		Ginneries and Products.			
		Cost of Production and Material Used (including Mill or Mine Supplies and Fuel.)	Value of Work (in- cluding Custom Work and Repair- ing.)	No. Lbs. Lint Up- land Cotton ginned at this Gin this year.	No. Lbs. Lint Sea Island Cotton gin- ned at this Gin this year.	No. Bushels Up- land Cotton Seed.	No. Bushels Sea Island Cotton Seed.
WASHINGTON.—Continued.							
Total County .....		756,450	1,292,353	905,800		55,472	
Saw mills and products .....		180,000	405,325				
Naval stores, turpentine and rosin .....		567,825	867,950				
Grist mills and products .....		2,450	5,773				
Ginneries and products .....		3,425	5,875	905,800		55,472	
Blacksmithing and repair shops..		2,750	7,428				

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## APPENDIX

VOLUME 21

NUMBER 1

# FLORIDA QUARTERLY BULLETIN

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JANUARY 1, 1911

DEPARTMENT OF AGRICULTURE

**B. E. McLIN**

COMMISSIONER OF AGRICULTURE

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REPORT OF THE CHEMICAL DIVISION

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**R. E. ROSE**

STATE CHEMIST

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Analysis of Fertilizers, Feed Stuff, Food and Drugs.  
Rules and Regulations.

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Entered January 31, 1903, at Tallahassee, Florida, as second-class matter, under  
Act of Congress of June 1900.

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These Bulletins Are Issued Free to Those Requesting Them

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T. J. APPLEYARD, State Printer,  
Tallahassee, Fla.

  
1911



LABORATORY OF STATE CHEMIST AND OFFICE OF STATE GEOLOGIST, TALLAHASSEE, FLA.

# STATE CHEMIST'S REPORT, 1910.

Tallahassee, Fla., January 1, 1911.

To His Excellency,  
Albert W. Gilchrist, Governor,  
Tallahassee, Florida.

Sir: I have the honor to submit the following report of the Chemical Division of the Agricultural Department of the State of Florida for the year ending December 31, 1910:

## RECEIPTS.

The records of the office of the Agricultural Department, and report of the State Treasurer, show the sale of inspection stamps covering 172,641.84 tons of Commercial Fertilizers—

Amounting to .....\$43,160.46

And 75,243.36 tons of Commercial Feeding Stuffs—

Amounting to ..... 18,810.59

A total revenue of.....\$61,971.05

paid into the State Treasury to the credit of the General Revenue Fund. From which is to be deducted the total expenses of the Chemical Division, and the expenses of the Department of Agriculture, incident to the execution of the Fertilizer, Feed Stuff, and Pure Food and Drug Laws.

## EXPENDITURES OF CHEMICAL DIVISION.

Salary State Chemist.....	\$ 2,500.00	
Traveling expenses State Chemist and Assistants.....	485.95	
Salary Fertilizer Chemist.....	1,800.00	
Salary Food and Drug Chemist.....	1,800.00	
Salary Food and Drug Inspector.....	1,500.00	
Cost of samples for Food and Drug analysis.....	}	898.73
Traveling expenses, Food and Drug Inspector.....		
Apparatus Food Laboratory.....		130.44
Salary Feed Stuff Chemist.....		1,500.00
Salary Feed Stuff Inspector.....		1,500.00
Travelling expenses Feed Stuff Inspector.....		965.55
Chemicals and Apparatus.....		1,332.95
Postage .....		92.43

Total expenses, Chemical Division.....\$14,516.00

To Credit of General Revenue Fund..... 47,455.05

Total Receipts .....\$61,971.05

## ANALYTICAL WORK.

The following analyses were made during the year:

Official samples fertilizers (drawn by chemist).....	160
Special samples fertilizers (sent in by citizens).....	377
Official samples feed stuff (drawn by inspector).....	162
Special samples feed stuff (sent in by citizens).....	30
Official food and drug samples (drawn by inspector)	194
Special food and drug samples (sent in by citizens)	56
Miscellaneous samples (sent in by citizens).....	172
Total number analyses .....	1151

## FERTILIZERS.

L. Heimbürger, M. S., Analyst.

Of the 160 official samples analysed, 123 samples were of complete goods; 37 samples were of fertilizer materials.

The 123 samples of complete fertilizer drawn by the State Chemist had the following average composition and guarantee:

	Ammonia.	Available Phos. Acid.	Potash.
Official analysis.....	3.89	6.68	7.83
Guarantee .....	3.80	6.19	6.84
Excess above guarantee...	0.09	0.49	0.49
Average State value found, per ton.....	\$29.70		
Average State value guaranteed, per ton...	28.38		

## EXCESS 0.20% ABOVE GUARANTEE.

We find complete fertilizers exceeding the guarantee 0.20% (twenty points), as follows:

In Ammonia .....	52 samples, or....	42.0%
In Available Phosphoric Acid	84 samples, or....	67.0%
In Potash .....	80 samples, or....	63.0%

### DEFICIENCY 0.20% BELOW GUARANTEE.

We find complete fertilizers below guarantee 0.20% (twenty points), as follows:

In Ammonia .....	23 samples, or....	19.0%
In Available Phosphoric Acid.	26 samples, or....	21.0%
In Potash ( $K_2O$ ) .....	27 samples, or....	21.0%

### COMMERCIAL STOCK FEED.

E. Peck Greene, B. S., Analyst.

The following analyses have been made during the year:

Official samples feed stuff.....	162
Special samples feed stuff.....	30

---

Total analyses ..... 192

The average composition of the official samples was as follows:

	Protein.	Starch and Sugar.	Fats.
Official analysis .....	17.96	55.11	3.93
Guaranteed analysis .....	17.64	54.36	4.15
Excess .....	0.32	0.75	
Deficiency .....			0.22

We find the official samples of feed stuff exceeded the guarantee 0.20% (twenty points), as follows:

In Protein .....	66 samples, or....	37.0%
In Starch and Sugar.....	75 samples, or....	42.2%
In Fats .....	50 samples, or....	31.1%

There was a deficiency of 0.20% (twenty points), as follows:

In Protein .....	34 samples, or....	20.9%
In Starch and Sugar.....	52 samples, or....	32.0%
In Fats .....	58 samples, or....	35.8%

## FOODS AND DRUGS.

A. M. Henry, B. S., Analyst.

## FOODS.

Official food samples.....	74
Special food samples.....	53
<hr/>	
Total food samples .....	127— 127
Official samples adulterated.....	3
Official samples adulterated and misbranded..	1
Official samples legal.....	70
<hr/>	
Total official food samples.....	74

## DRUGS.

Official drug samples.....	120
Special drug samples.....	3
<hr/>	
Total drug samples.....	123— 123
Official samples adulterated.....	39
Official samples misbranded.....	27
Official samples adulterated and misbranded..	26
Official samples legal.....	28
<hr/>	
Total official drug samples.....	120

Total analyses foods and drugs.....	250
-------------------------------------	-----

Those samples found adulterated or misbranded have been reported to the proper officer. In all cases the dealers and manufacturers have corrected the labels by placing the proper labels on the goods or by withdrawing the offending materials from the market.

A number of prosecutions for misbranding have been had, and in a number of cases the parties have been found guilty and punished by fine. These prosecutions, however, are not part of the duty of the Chemical Division, but come under the jurisdiction of the various courts. The evidence of adulteration or misbranding only being furnished by the Chemical Division.

## FERTILIZERS.

Examination of the foregoing averages of the "guaranteed analyses" of the samples drawn throughout the State by the State Chemist, and the results of the "official analyses" of the same, together with a study of the tables of analyses following, will show that there has been a steady improvement of the uniformity of the mixing and preparation of the various brands sold in the State; that there has been but few deficiencies in any of the materials guaranteed; that the manufacturer has, by improved machinery, careful weighing and skillful manipulation, furnished a more uniform and exact fertilizer—generally slightly above the guarantee in all three essential elements.

It will be noted that owing to the material improvement in manufacture, that the goods sold during 1910 have been more generally uniform, with fewer excesses or deficiencies in composition; that the average excess in ammonia of 0.22 in 1909 has fallen to 0.09 in 1910; that the excess in potash of 0.55 in 1909 has fallen to 0.49 in 1910; that the excess in available phosphoric acid of 0.90 in 1909 has fallen to 0.49 in 1910; while the deficiencies (twenty points below guarantee) has materially lessened, showing a more careful and thorough preparation of fertilizers by the manufacturers, better machinery and more skillful technical work.

Most of the manufacturers of the State now employ a chemist, and their factories and output are under strict chemical and technical control.

## HIGH-GRADE FERTILIZERS USED IN FLORIDA.

Acreage under culture considered, Florida consumes more commercial fertilizer than any of her sister States, while she also uses the highest grades known to the trade. Her orange and pineapple growers, her truck farmers and fruit growers, are probably the most competent and exacting consumers of fertilizer in the world—men fully



capable of knowing what they require for the best results; and while demanding high-grade goods, made of such materials as they specify, are willing to pay for the same, but will not tolerate substitution or deficiency.

This fact demonstrates the correctness of the position assumed in previous reports that high-grade goods, though costing more per ton, are in fact more economical. The freights and other charges on "fillers" are costly, while the unit values of high-grade goods are less than those of low grades.

#### SPECIAL SAMPLES.

In this connection the "special sample"—peculiar to the Florida law—has proved its value to both the consumer and the manufacturer. Much of the uniformity and high quality of the goods sold throughout the State can be attributed to the "special sample"—sent in by the purchaser, and analysed by the State without charge—thus proving the wisdom of the Legislature in providing this simple and direct method of obtaining quickly an exact knowledge of the true value, commercially and agriculturally, of the goods sold.

A careful study of the "official analyses," and an intelligent use of the "special sample," is again commended to the consumers of commercial fertilizers in the State.

Special attention is called to the law and regulations governing the drawing and transmitting special samples of fertilizer and feed stuff.

#### SYNONYMS AND LOCALISMS.

Heretofore I have called attention to the costly prejudice in favor of Dissolved Bone or Dissolved Bone Black, as against Dissolved Florida or other rock phosphates. Dissolved Bone, Dissolved Bone Black and Dissolved Rock Phosphate are identical chemically and agriculturally. I do not allude to Raw Bones, or Raw Bone Meal, but to the dissolved materials.

Bones, or Rock Phosphates, dissolved in Sulphuric Acid, produce the same substance properly called "super-phosphate," a combination of Sulphuric Acid and Sulphate of Lime—(Gypsum or Land Plaster). Super-phosphates, made either from Bones or Rock Phosphate, is identical in fertilizing value. This subject has been discussed fully in previous reports and in various quarterly Bulletins.

This prejudice annually costs our consumers large sums. Thousands of tons of "Dissolved Bone," "Dissolved Bone Black" or "Bone and Potash," are sold annually, in which no bones are used.

Long usage probably justifies these trade names, "Dissolved Bone" for acid phosphate (super-phosphate), or "Bone and Potash" for acid phosphate and kainit, while the term "Guano" is used for any complete (ammonited) cotton goods—though no "guano" enters into its composition.

#### TANKAGE.

Tankage is the refuse of slaughter houses, cooked by steam in tanks under pressure, generally with the addition of sulphuric acid to dissolve the aluminoids, converting them into sulphate of ammonia—one of the most valuable ammoniates known to the trade.

"Garbage tankage," the refuse of the kitchens of our cities, is treated in the same manner and yields a low-grade tankage, 3 to 4 per cent. ammonia; its quality depends much upon the season when gathered — summer garbage, on account of the larger proportion of vegetable matter, being of less value than winter garbage.

Tankage is graded according to its ammonia content, which runs from 3 per cent. to 10 per cent., depending on its source. It is generally sold in Florida as "Blood and Bone," a misnomer, as tankage is not blood and bone, though it may contain more or less blood and some bone.

The ammonia in tankage is largely in the form of sulphate, white raw bone, or pure blood, contains little if any sulphate.

When the term "tankage" is used as a source of ammonia, the inference would be that part, if not the most, of the ammonia was a sulphate. While the term "Blood and Bone" would suggest organic nitrogen only. The term "Blood and Bone" is unknown to the trade, except in Florida, and there means tankage. Tankage is not "Blood and Bone," and its nitrogen is not—similar to that of Raw Bone, or Blood.

In Steamed Bone, the nitrogen is also, generally, largely in the form of sulphate of ammonia, as sulphuric acid is used for exactly the same purpose as it is in tankage, to dissolve and disintegrate the albuminoids—gristle and ligaments—and assist in freeing the bones of fat and flesh.

These subjects have been discussed frequently in various Bulletins and Reports of this and other States, and of the United States Department of Agriculture, and by various trade journals, notably the "American Fertilizer."

The Florida trade — manufacturers, dealers and consumers—should confine themselves to the accepted trade names of the various materials used; while consumers should specify exactly what they desire in their mixtures, and hold the manufacturer responsible under the law for any substitution. With a perfect understanding, no confusion arises. An exact definition of terms is required for intelligent discussion of any subject.

#### LEATHER, HAIR AND WOOL WASTE.

The Florida law prohibits the sale of "any pulverized leather, hair or wool waste, raw, steamed, roasted or in any form as fertilizer, or as an ingredient of any fertilizer or manure, without a printed certificate of the fact; said certificate shall be conspicuously affixed to every package

of fertilizer or manure." This is a good law, and has prevented the sale of much unavailable nitrogen (or ammonia) in the State. However, when these waste materials are dissolved in sulphuric acid, they are no longer leather, hair or wool waste, but a mixture of sulphate of ammonia and humus, both valuable applications to hungry soils. In fact, the source of some of our most popular and expensive Florida fertilizers — particularly orange tree and vegetable fertilizers — is largely from properly dissolved (decomposed) factory waste, consisting largely of these enumerated materials.

#### ORGANIC AMMONIATES.

One of the most serious problems at present is an adequate supply of Organic Ammoniates (as distinguished from the salts of ammonia and nitrogen). This shortage is caused by the use of animal and vegetable refuse in preparing fertilizers, by converting the fixed (unavailable) nitrogen into sulphate of ammonia, and by the increased use of cotton seed meal, linseed meal and similar by-products for stock feed. All such waste materials should be used, as fertilizers are very largely composed of the waste of our homes, kitchens, stables, cities, gas works, slaughter houses, fisheries, cotton seed and linseed oil factories, etc.

#### PEAT OR MUCK.

There has been recently much discussion as to the availability of the nitrogen of peat as a fertilizer. Raw peat, like leather, is practically inert and of little value. When properly decomposed, either by sulphuric acid or by thorough oxidation (rotting), or by composting with superphosphate and sulphate of potash, peat becomes a valuable fertilizer, as is evidenced by various practical demonstrations.

The nitrogen of raw, sour, undrained peat or muck is not available, nor if it be simply dried and ground; it

must be decomposed, and its nitrogen made available by chemical (or bacterial) action. This can be most economically accomplished by drainage, to allow the air to enter and oxidize (rot) the material, or by composting the raw muck with super-phosphate (acid phosphate) and sulphate of potash, and allowing it to decompose.

#### MUCK LANDS.

The vast beds of muck, or peat, in Florida contain from 1 to 3 per cent. of nitrogen, when properly and thoroughly drained and treated with super-phosphate and potash—in which they are deficient—they will become the most fertile and productive soils of this or any other State or country. This fertility will depend, to a large degree, upon the availability of their stored-up nitrogen, which can be made available only by decomposition (rotting), which can only be accomplished by thorough drainage and aeration (oxidation). When thoroughly drained (decomposed and oxidized), these muck lands are wonderfully productive. If not thoroughly drained, they are not suitable for general agriculture.

The application of super-phosphates—and potash—in which elements these lands are deficient—to thoroughly drained muck lands, will produce maximum crops of all kinds suitable to the climate.

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#### COMMERCIAL FEED STUFFS.

There has been a slight increase in the average value of commercial feed stuff sold in the State, the average excess above guarantee in protein has increased, while fats and "soluble carbohydrates" (starches and sugars) has slightly decreased; the percentage of deficiencies has notably decreased. The same statements as to the value of the "special sample" applies to feed stuff as to fertiliz-

ers. As much depends on the consumer to correct abuses in feed stuff as does upon the consumer of fertilizers. The live stock of the State should be as carefully protected in their foods as are the fruit and other crops. The same intelligent purchase of feed stuff that is now applied to fertilizers by consumers will result in placing our feed stuff on the same high plane as our fertilizers.

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### FLORIDA FEED STUFFS.

Attention is called to the analysis of Florida-grown feed stuffs, as compared to that imported into the State, particularly to "beggar weed," "cow peas," "velvet beans" and "Japanese kudzu." These analyses show that these plants produce hays equal in value to the average mixed feeds imported, and superior to most of the imported materials. They are superior to bran, middlings or oats, and far superior to the average of the imported feeds.

They surpass alfalfa or clover in their feeding value. They are peculiar to our soil and climate, their cost of culture and curing is not greater than to cultivate and cure clover or alfalfa. Their more general culture would save the State many thousands of dollars, now sent to Northern States for stock feeds, and provide the Florida stockman and dairyman with an equally valuable, or superior, leguminous (proteid) feed at far less cost, at the same time fertilizing his fields and increasing the value of his other crops. The State purchased during the year 1910 75,243.36 tons of mixed stock feed—to say nothing of the hays and grains imported—averaging \$32.00 per ton, representing \$2,407,787.52, all of which should have been produced on her own farms, saving to our farmers not only this large sum, but adding to the fertility of her farms practically the same amount in increased fertility and productiveness. No State in the Union—and I say

it advisedly—has a greater variety of economically grown legumes, or longer list of meadow and pasture grasses, furnishing the necessary carbohydrates, than has Florida, with velvet beans, beggar weed, cow peas and kudzu as legumes; Bermuda, crab grass, Natal grass, Para grass and Japanese sugar cane, have no superior for pasture and meadow.

Japanese sugar cane produces a superior cattle or hog feed, rich in sugar, carbohydrates — fat formers. It is wonderfully productive; twenty tons per acre are by no means unusual. When once established it will continue to grow for years, being practically a perennial in this State.

Florida's soil and climate, her abundant rainfall, her lakes and streams, artesian waters, her short, mild winters, her abundant native grasses and legumes, make stock raising peculiarly attractive to the farmer and investor.

Her drained lands and flat woods are peculiarly adapted to successful cattle growing, as is evidenced by the large herds now profitably grown on the drained lands of the Central Peninsula.

It is notable that during the past few years large quantities of hay and other forage crops have been produced in the State; that the mowing machine and hay press, unknown "before the freeze," are being rapidly introduced throughout the State; that pure-bred cattle and hogs are being successfully grown, and that her dairies, though still few in number, are producing butter equal to that produced in any part of the Union, at a cost less than the average cost of production in the Western dairy States. The supply by no means equals the demand at the highest market prices.

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#### FOODS AND DRUGS.

It will be noted that but four cases of adulteration or misbranding have occurred in foods officially sampled,

showing that the law is becoming better understood and complied with.

In the case of drugs, 39 samples were adulterated, 27 misbranded and 26 both adulterated and misbranded, while 28 were found legal.

In a number of cases the misbranding was the neglect to state the percentage of alcohol on the label or other article enumerated in Section 5 of the law, while in a number of cases the adulteration consisted of an excess of the active drug in the preparation.

It will be noted that during the latter part of the year these misbrandings and adulterations were less in evidence, manufacturers and dealers having been notified of their illegal labels and lack of care in properly proportioning their materials, have generally complied with the law and made their goods to conform to the standards fixed by law, and to state the percentages or amounts of the materials required to be stated on the labels.

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### PURE FOOD AND DRUG LAW.

There are several obscure, and possibly contradictory, features of the Pure Food and Drug Law as enacted. Amendments, by elimination of these portions of the law, would materially strengthen it, make it clearer and positive where it is now ambiguous.

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### SO-CALLED NEAR-BEER.

A number of analyses of these various fermented liquors, generally guaranteed to contain less than 2 per cent. alcohol, and represented as non-intoxicating, have been made for Sheriffs and prosecuting officers of the



State. Several convictions have been had and penalties of fine and imprisonment imposed.

The analyses of these materials show them to be very inferior beers, with generally a larger percentage of alcohol than in standard beer, 4 to 5 per cent. or more.

#### ATTENDANCE UPON COURTS.

Much of the time of the State Chemist, and Assistant State Chemists, has been unnecessarily devoted to attendance upon courts to testify as to chemical determinations. The law provides that "The certificate of analysis of the State Chemist, or his assistant, when properly verified by the State Chemist, or his assistant, shall be *prima facie* evidence in any court of law or equity in this State." This provision was intended to prevent the expense and loss of time involved in attendance upon court by the chemists of the State Department of Agriculture. The courts very properly confine the chemists' testimony to the facts of the analysis, as stated in the certificate and affidavit. The Chemist, or his assistants, are not aware of any of the facts surrounding the case; hence, they are only competent to certify as to the results of the analysis of the particular sample, which facts are fully set out in the certificate and affidavit.

Some means should be provided to prevent this unnecessary loss of time and the expenses involved in unnecessary and useless attendance upon courts in such cases.

#### INSPECTORS.

Active, efficient and frequent inspection of the various factories, warehouses, railroad stations, local warehouses and dealers' stocks of goods is imperative for the proper

administration of the fertilizer, feed stuff and pure food and drug laws.

More depends upon the inspectors' vigilance to detect frauds, correct evils and protect the revenues of the State than upon any other branch of the service. This particularly applies to the larger cities of the State, the distributing points of most of the goods sold throughout the State, where are located the factories, warehouses and depots from which the fertilizers, feeds, foods and drugs are distributed to the retail merchant and the consumer, who depend upon the manufacturer, jobber and wholesaler for the quality, purity and legality of his goods, the truthfulness of the brand or label.

I again call attention to the present crude, cumbersome and comparatively expensive system of inspection. Our inspectors are active, diligent and competent, and under our present system are doing all that can be expected of them to enforce the law and protect the State and her citizens from imposition and fraud.

The field is broad, however—the largest State east of the Mississippi River, with the longest distances by rail between her principal distributing points.

It is physically impossible for each inspector to efficiently and economically cover the entire State.

The present system of one inspector for each division—fertilizers, feeds, and foods and drugs—is cumbersome and expensive.

Each inspector of the Chemical Division should be competent and have the authority to inspect any or all of the articles subject to inspection, not being confined to one particular class of goods, as is now the case, making it necessary for three inspectors to visit any given point in order to properly inspect the goods sold.

The inspectors should have authority to at once seize and place in the hands of the Sheriff anything that is obviously misbranded or adulterated, filthy or decomposed, sending samples to this office for confirmation of

their decisions as to its illegality. The reasons for this authority are obvious.

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I respectfully call your attention to the suggestions and recommendations of my report for 1909, as follows:

#### SUGGESTIONS AND RECOMMENDATIONS.

Inspectors—At present there are two inspectors employed, one for feed stuff, one for foods and drugs. The State Chemist is the only inspector of fertilizers.

I would suggest that not less than three inspectors be employed, each to have authority to draw samples of all goods subject to inspection—that is, fertilizers, foods and drugs, and feeds; having authority to seize any material misbranded or that fails to bear the proper inspection stamp. That one of these inspectors be located at each large city—Pensacola, Jacksonville, and Tampa—and have charge each of a Congressional District, subject to orders of the Commissioner of Agriculture, and at his direction be detailed to any part of the State if necessary; that the State Chemist have, as now, the general supervision of the inspection of goods throughout the State, in order to frequently consult, assist and direct the inspectors in their work.

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#### STANDARDS.

It is evident that standards should be fixed by law for mixed feeds, and for certain by-products of factories used for feed, to prevent the sale of materials below the average of such goods, though properly guaranteed. A number of States have adopted such standards, fixing the minimum of the valuable ingredients in mixed feed stuff permissible in feeds sold in the State. Florida should fix similar standards, as without them foods not saleable in other States can be sold in Florida, though truthfully labeled they are not standard foods, and should not be sold as concentrated feed stuff.

Very respectfully,

R. E. Rose, State Chemist.

### SPECIAL SAMPLES.

Florida is the only State in the Union that provides for the "special sample," drawn by the consumer or purchaser, under proper rules and regulations fixed by law—to be sent to the State Laboratory for analysis free of cost. Any citizen in the State who has purchased fertilizers or feeds for his own use may draw a sample of the same, according to law, and have the same analysed by the State Chemist free of cost. And in case of adulteration or deficiency he can, on establishing the fact, receive double the cost of price demanded for the goods.

The law requires the "special samples" to be drawn in a manner to prevent the submission of spurious samples; rules and regulations are published in every Bulletin for drawing and transmitting "special samples."

This special sample has been a most potent factor in enforcing the law and discouraging the sale of adulterated or misbranded goods.

Special samples of foods and drugs may also be sent to the State Laboratory for analysis free of cost, when the sample is properly drawn according to law. The necessary instructions and blanks required to properly draw and transmit samples of "food and drugs" will be sent to any citizen requesting the same.

**"THE SPECIAL SAMPLE FURNISHES THE CONSUMER WITH THE SAME PROTECTION DEMANDED BY THE MANUFACTURER, WHO BUYS HIS MATERIALS ONLY UPON GUARANTEE AND PAYS FOR THEM ACCORDING TO ANALYSIS, AND IS PAID FOR BY THE CONSUMER OUT OF THE FUNDS DERIVED FROM THE INSPECTION FEE OF TWENTY-FIVE CENTS PER TON PAID ON FERTILIZERS AND FEEDS SOLD IN THE STATE."**

REGULATIONS GOVERNING THE TAKING AND  
FORWARDING OF FERTILIZER OR COMMERCIAL  
FEEDING STUFF SAMPLES TO THE COM-  
MISSIONER OF AGRICULTURE.

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SECTION 15 OF THE LAWS.

Special samples of Fertilizers or Commercial Feeding Stuffs sent in by purchasers, under Section 9 of the laws, shall be drawn in the presence of two disinterested witnesses, from one or more packages, thoroughly mixed, and A FAIR SAMPLE OF THE SAME OF NOT LESS THAN EIGHT OUNCES (ONE-HALF POUND) SHALL BE PLACED IN A CAN OR BOTTLE, SEALED AND SENT BY A DISINTERESTED PARTY TO THE COMMISSIONER OF AGRICULTURE AT TALLAHASSEE. NOT LESS THAN EIGHT OUNCES, IN A TIN CAN OR BOTTLE, WILL BE ACCEPTED FOR ANALYSIS. This rule is adopted to secure fair samples of sufficient size to make the necessary determinations and to allow the preservation of a duplicate sample in case of protest or appeal. This duplicate sample will be preserved for two months from the date of certificate of analysis.

The State Chemist is not the proper officer to receive special samples from the purchaser. The propriety of the method of drawing and sending the samples as fixed by law is obvious.

The drawing and sending of special samples in rare cases is in compliance with law. Samples are frequently sent in paper packages or paper boxes, badly packed, and frequently in very small quantity (less than ounce); frequently there are no marks, numbers or other means of identification; the postmark in some instances being absent.

I would call the attention of those who desire to avail themselves of this privilege to Sections 9 and 10 of the law, which are clear and explicit.

Hereafter, strict compliance with above regulations will be required. *The sample must not be less than one-half pound, in a can or bottle, sealed and addressed to the Commissioner of Agriculture. The sender's name and address must also be on the package, this rule applying to special samples of fertilizers or commercial feeding stuff.*

A one-pound haking powder can, properly cleaned, filled with a fairly drawn, well mixed sample taken from several sacks, is a proper sample. *It should be sealed and addressed to the Commissioner of Agriculture at Tallahassee. The sender's name and address should also be placed on the package. If more than one sample is sent, the samples should be numbered so as to identify them. All this should be done in the presence of the witnesses and the package mailed or expressed by one of the witnesses.*

The tags off the sacks should be retained by the sender to compare with the certificate of analysis when received, and not sent to this office. *The date of the drawing and sending of the sample, and names of the witnesses, should also be retained by the sender; not sent to this office.*

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#### INSTRUCTIONS TO MANUFACTURERS AND DEALERS.

Each package of Commercial Fertilizer, and each package of Commercial Feeding Stuff, must have, securely attached thereto, a tag with the guaranteed analysis required by law and the stamp showing the payment of the inspector's fee. This provision of the law, Section 3 of both laws—will be rigidly enforced.

Manufacturers and dealers will be required to properly tag and stamp each package of Commercial Fertilizer or Commercial Feeding Stuff under penalty as fixed in Section 6 of both laws. Tags shall be attached to the top end of each bag, or head of each barrel.

## INSTRUCTIONS TO PURCHASERS.

Purchasers are cautioned to purchase no Commercial Fertilizers or Commercial Feeding Stuff that does not bear on *each package* an analysis tag with the guarantee required by law, and the stamp showing the payment of the inspector's fee. Goods not having the guarantee tag and stamp are irregular and fraudulent; the absence of the guarantee and stamp being evidence that the manufacturer or dealer has not complied with the law. Without the guarantee tag and stamp showing what the goods are guaranteed to contain, the purchaser has no recourse against the manufacturer or dealer. Such goods are sold illegally and fraudulently, and are generally of little value. All reputable manufacturers and dealers now comply strictly with the law and regulations by placing the guarantee tag and stamp on each package.

## INSTRUCTIONS TO SHERIFFS.

The attention of Sheriffs of the various counties is called to Section 3 of both laws, defining their duties. This Department expects each Sheriff to assist in maintaining the law and protecting the citizens of the State from the imposition of fraudulent, inferior or deficient Commercial Fertilizers or Commercial Feeding Stuffs.

**MARKET PRICES OF CHEMICALS AND FERTILIZ-  
ING MATERIALS AT FLORIDA SEA  
PORTS, JANUARY 1, 1911.**

**AMMONIATES.**

	Less than ten tons.
Nitrate of Soda, 17 to 19 % Ammonia.....	\$ 52.00
Sulphate of Ammonia, 25 to 26% Ammonia.....	70.00
Dried Blood, 16 to 19% Ammonia.....	67.00
Cynanamid, 12½ to 13½% Ammonia.....	46.00
Dry Fish Scrap, 11% Ammonia.....	57.00

**POTASHES.**

High Grade Sulphate of Potash, 90 to 95% Sulphate, 48 to 50% $K_2O$ .....	\$ 56.00
Low grade Sulphate of Potash, 48 to 53% Sulphate, 26 to 28% $K_2O$ .....	32.00
Muriate of Potash, 80 to 85%, 48 to 50% $K_2O$ ..	50.00
Nitrate of Potash, imported, 15% Ammonia, 44% potash $K_2O$ .....	94.00
Nitrate of Potash, American, 13% Ammonia, 42% potash $K_2O$ .....	84.00
Kainit, 12 to 13% Potash, 12% $K_2O$ .....	15.00
Canada Hardwood Ashes, in bags, 4 to 6% $K_2O$ Potash .....	19.00

**AMMONIA AND PHOSPHORIC ACID.**

High Grade Tankage, 10% Ammonia, 5½ to 7% Phosphoric Acid .....	\$ 44.00
Tankage, 8 to 9% Ammonia, 10 to 11% Phosphoric Acid .....	40.00
Low Grade Tankage, 6½ to 8% Ammonia, 12 to 14% Phosphoric Acid .....	37.00
Hotel Tankage, 6 to 7% Ammonia, 7 to 8% Phosphoric Acid .....	25.00
Sheep Manure, ground, 3 to 4% Ammonia.....	24.00



Imported Fish Gnano, 10% Ammonia, 10% Phosphoric Acid .....	45.00
Pure Fine Steamed Ground Bone, 3 to 4% Ammonia, 22 to 25% Phosphoric Acid.....	29.00
Raw Bone, 4 to 5% Ammonia, 22 to 25% Phosphoric Acid .....	34.00
Ground Castor Pomace, 5½% Ammonia, 2 to 6% Phosphoric Acid .....	25.00
Bright Cotton Seed Meal, 7½ to 8% Ammonia...	31.00
Dark Cotton Seed Meal, 5 to 7% Ammonia.....	27.00

## PHOSPHORIC ACID.

High Grade Acid Phosphate, 16% Available Phosphoric Acid .....	\$ 15.00
Acid Phosphate, 14% Available Phosphoric Acid .....	14.00
Bone Black, 17 to 18% Available Phosphoric Acid .....	25.00

## MISCELLANEOUS.

High Grade Ground Tobacco Stems, 2 to 2½% Ammonia, 8 to 10% Potash .....	\$ 22.00
High Grade Ground Kentucky Tobacco Stems, 2½ to 3% Ammonia, 10 to 11% Potash.....	25.00
Tobacco Dnst No. 1, 2 to 3% Ammonia, 2 to 3% Potash .....	25.00
Cnt Tobacco Stems, in sacks, 2 to 2½% Ammonia, 4 to 5% Potash .....	20.00
Dark Tobacco Stems, haled, 2 to 2½% Ammonia, 4 to 5% Potash .....	19.00
Land Plaster, in sacks .....	12.00

The charges by reputable manufacturers for mixing and haggng any special or regular formula are \$1.50 per ton in excess of above prices.

NEW YORK WHOLESALE PRICES, CURRENT  
JAN. 1, 1911—FERTILIZER MATERIALS.

## AMMONIATES.

Ammonia, sulphate, foreign, prompt...	\$2.85	@	\$2.92½
futures .....	2.87½	@	2.90
Ammonia, sulphate, domestic, spot.....	—	@	—
futures .....	2.95	@	2.97½
Fish Scrap, dried, 11% ammonia and 14% bone phosphate, f. o. b. fish .			
works, per unit .....	—	@	—
wet, acidulated, 6% ammonia and 3% phosphoric acid, f. o. b. fish-works .....	2.50	&	35
Ground Fish Guano, imported, 10 and 11% ammonia and 15 and 17% bone phosphate, c. i. f. New York, Balti- more or Philadelphia .....	3.55	@	3.65&10
Tankage, 11% and 15%, f. o. b. Chicago, basis October .....	2.95	&	10
Tankage, 10% and 20%, f. o. b. Chicago, ground, basis October .....	2.95	&	10
Tankage, 9% and 20%, f. o. b. Chicago, ground .....	—	@	—
Tankage, concentrated, f. o. b. Chicago, 14 to 15%, f. o. b. Chicago.....	2.80	@	—
Garbage, tankage, f. o. b. Chicago.....	9.00	@	—
Sheep Manure, concentrated, f. o. b. Chi- cago, per ton .....	10.00	@	—
Hoofmeal, f. o. b. Chicago, per unit....	—	@	—
Dried Blood, 12 to 13% ammonia, f. o. b. New York .....	3.30	@	3.35
Chicago, basis October .....	3.17½	@	—
Nitrate of Soda, 95%, spot, per 100 lbs..	2.12½	@	2.15
futures, 95% .....	2.12½	@	2.15

## PHOSPHATES.

Acid Phosphate, per unit .....	\$ .62	@ \$ .65
Bones, rough, hard, per ton .....	21.00	@ 22.00
soft, steamed, unground.....	21.50	@ 22.00
ground, steamed, 1 $\frac{1}{4}$ % ammo-		
nia and 60% bone phosphate	22.50	@ 21.50
ditto, 3 and 50%.....	22.50	@ 23.00
raw ground, 4% ammonia and		
50% bone phosphate .....	26.50	@ 27.50
South Carolina Phosphate Rock, kiln-		
dried, f. o. b. Ashley River.....	3.50	@ 3.75
Florida Land Pebble Phosphate Rock,		
68%, f. o. b. Port Tampa, Fla.....	3.75	@ 4.00
Florida High Grade Phosphate Hard		
Rock, 77%, f. o. h. Florida ports.....	5.50	@ 6.00
Tennessee Phosphate Rock, f. o. b. Mt.		
Pleasant, domestic, per ton, 78-80%..	5.00	@ 5.50
75% guaranteed .....	4.75	@ 5.00
68-72% .....	4.25	@ 4.50

## POTASHES.

Muriate of Potash, 80-85%, basis 80%,		
in bags .....	\$35.75	@ —
Muriate of Potash, min. 95%, basis 80%,		
in bags .....	37.25	@ —
Muriate of Potash, min. 98%, basis 80%,		
in bags .....	38.00	@ —
Sulphate of Potash, 90-95%, basis 90%,		
in bags .....	43.50	@ —
Double Manure Salt, 48-53%, basis 48%,		
in bags .....	22.75	@ —
Manure Salt, min. 20%, K <sub>2</sub> O, in bulk...	12.25	@ —
Hardsalt, min. 16%, K <sub>2</sub> O, in bulk.....	9.70	@ —
Kainit, min. 12.4%, K <sub>2</sub> O, in bulk.....	7.50	@ —

## STATE VALUATIONS

For Available and Insoluble Phosphoric Acid, Ammonia  
and Potash, for the Season of 1911.

Available Phosphoric Acid .....	5c. a pound
Insoluble Phosphoric Acid .....	1c. a pound
Ammonia (or its equivalent in nitrogen)...	17½c. a pound
Potash (as actual potash, K <sub>2</sub> O) .....	5½c. a pound

If calculated by units—

Available Phosphoric Acid .....	\$1.00 per unit
Insoluble Phosphoric Acid .....	.20 c. per unit
Ammonia (or its equivalent in nitrogen)...	3.50 per unit
Potash .....	1.10 per unit

With a uniform allowance of \$1.50 per ton for mixing  
and bagging.

A unit is twenty pounds, or 1 per cent., in a ton. We  
find this to be the easiest and quickest method for calcu-  
lating the value of fertilizer. To illustrate this, take  
for example a fertilizer which analyzes as follows:

Available Phosphoric Acid...	6.22 per cent.	x \$1.00—	\$ 6.22
Insoluble Phosphoric Acid...	1.50 per cent.	x .20—	.30
Ammonia .....	3.42 per cent.	x 3.50—	11.97
Potash .....	7.23 per cent.	x 1.10—	7.95
Mixing and Bagging .....		—	1.50

Commercial value at sea ports .....\$27.94

Or a fertilizer analyzing as follows:

Available Phosphoric Acid....	8 per cent.	x \$1.00—	\$ 8.00
Ammonia .....	2 per cent.	x 3.50—	7.00
Potash .....	2 per cent.	x 1.10—	2.20
Mixing and Bagging .....		—	1.50

Commercial value at sea ports.....\$18.70

The above valuations are for cash for materials delivered at Florida seaports, and they can be bought in one-ton lots at these prices at the date of issuing this Bulletin. Where fertilizers are bought at interior points, the additional freight to that point must be added.

If purchased in carload lots for cash, a reduction of ten per cent. can be made in above valuations, *i. e.*:

Available Phosphoric Acid .....	90 cents per unit
Potash ( $K_2O$ ) .....	99 cents per unit
Ammonia (or equivalent in nitrogen) ..	\$3.15 per unit

The valuations and market prices in preceding illustrations are based on market prices for one-ton lots.

#### STATE VALUES.

It is not intended by the "State valuation" to fix the price or commercial value of a given brand. The "State values" are the market prices for the various approved chemicals and materials used in mixing or manufacturing commercial fertilizers or commercial stock feed at the date of issuing a Bulletin, or the opening of the "season." They may, but seldom do, vary from the market prices, and are made liberal to meet any slight advance or decline.

They are compiled from price lists and commercial reports by reputable dealers and journals.

The question is frequently asked: "What is 'Smith's Fruit and Vine' worth per ton?" Such a question cannot be answered categorically. By analysis, the ammonia, available phosphoric acid and potash may be determined, and the inquirer informed what the cost of the necessary material to compound a ton of goods similar to "Smith's Fruit and Vine" would be, using none but accepted and well known materials of the best quality.

State values do not consider "trade secrets," loss on bad hills, cost of advertisements and expenses of collec-

tions. The "State value" is simply that price at which the various ingredients necessary to use in compounding a fertilizer, or feed, can be *purchased for cash in ton lots at Florida seaports.*

These price lists are published in this report, with the "State values" for 1911 deducted therefrom.

# COMPOSITION OF FERTILIZER MATERIALS.

## NITROGENOUS MATERIALS.

	POUNDS PER HUNDRED		
	Ammonia	Phosphoric Acid	Potash
Nitrate of Soda.....	17 to 19	.....	.....
Sulphate of Ammonia....	21 to 24	.....	.....
Dried Blood .....	12 to 17	.....	.....
Concentrated Tankage....	12 to 15	1 to 2	.....
Bone Tankage .....	6 to 9	10 to 15	.....
Dried Fish Scrap.....	8 to 11	6 to 8	.....
Cotton Seed Meal.....	7 to 10	2 to 3	1½ to 2
Hoof Meal .....	13 to 17	1½ to 2	.....

## PHOSPHATE MATERIALS.

	POUNDS PER HUNDRED		
	Ammonia	Available Phos. Acid	Insoluble Phosphoric Acid
Florida Pebble Phosphate.....	.....	.....	26 to 32
Florida Rock Phosphate..	.....	.....	33 to 35
Florida Super Phosphate. ....	.....	14 to 45	1 to 35
Ground Bone .....	3 to 6	5 to 8	15 to 17
Steamed Bone .....	3 to 4	6 to 9	10 to 20
Dissolved Bone .....	2 to 4	13 to 15	2 to 3

## POTASH MATERIALS AND FARM MANURES.

	POUNDS PER HUNDRED			
	Actual Potash	Ammonia	Phosphoric Acid	Lime
Muriate of Potash.....	50	.....	.....	.....
Sulphate of Potash.....	48 to 52	.....	.....	.....
Carbonate of Potash.....	55 to 60	.....	.....	.....
Nitrate of Potash.....	40 to 44	12 to 16	.....	.....
Double Sul. of Pot. & Mag.	26 to 30	.....	.....	.....
Kainit .....	12 to 12½	.....	.....	.....
Sylvinit .....	16 to 20	.....	.....	.....
Cotton Seed Hull Ashes..	15 to 30	.....	7 to 9	10 -
Wood Ashes, unleached..	2 to 8	.....	1 to 2	.....
Wood Ashes, leached....	1 to 2	.....	1 to 1½	35 to 40
Tobacco Stems .....	5 to 8	2 to 4	.....	3½
Cow Manure (fresh)....	0.40	0 to 0.41	0.16	0.31
Horse Manure (fresh)...	0.53	0 to 0.60	0.28	0.31
Sheep Manure (fresh)...	0.67	1.00	0.23	0.33
Hog Manure (fresh)....	0.60	0.55	0.19	0.08
Hen Dung (fresh).....	0.85	2.07	1.54	0.24
Mixed Stable Manure....	0.63	0.76	0.26	0.70

## FACTORS FOR CONVERSION.

To convert—

Ammonia into nitrogen, multiply by.....	0.824
Ammonia into protein, multiply by.....	5.15
Nitrogen into ammonia, multiply by.....	1.214
Nitrate of soda into nitrogen, multiply by.....	0.1647
Nitrogen into protein, multiply by.....	6.25
Bone phosphate into phosphoric acid, multiply by	0.458
Phosphoric acid into bone phosphate, multiply by	2.184
Muriate of potash into actual potash, multiply by	0.632
Actual potash into muriate of potash, multiply by	1.583
Sulphate of potash into actual potash, multiply by	0.541
Actual potash into sulphate of potash, multiply by	1.85
Nitrate of potash into nitrogen, multiply by.....	0.139
Carbonate of potash into actual potash, multiply by	0.681
Actual potash into carbonate of potash, multiply by	1.466
Chlorine, in "kainit," multiply potash ( $K_2O$ ) by..	2.33

For instance, you buy 95 per cent. of nitrate of soda and want to know how much nitrogen is in it. multiply 95 per cent. by 0.1647, you will get 15.65 per cent. nitrogen; you want to know how much ammonia this nitrogen is equivalent to, then multiply 15.65 per cent. by 1.214 and you get 18.99 per cent., the equivalent in ammonia.

Or, to convert 90 per cent. carbonate of potash into actual potash ( $K_2O$ ), multiply 90 by 0.681, equals 61.29 per cent. actual potash ( $K_2O$ ).

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COPIES OF THE FERTILIZER AND STOCK FEED  
LAWS.

Citizens interested in the fertilizer and stock feed laws of the State, and desiring to avail themselves of their pro-



tection, can obtain copies free of charge by sending for same to the Commissioner of Agriculture.

#### COPIES OF THE PURE FOOD AND DRUG LAW.

Copies of the Pure Food and Drug Law, rules and regulations, standards, blanks, etc., can be obtained from the Commissioner of Agriculture.

AVERAGE COMPOSITION OF COMMERCIAL  
FEED STUFFS.

NAME OF FEED.	Crude Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.
Bright Cot'n Seed Meal	9.35	39.70	28.60	7.80	5.80
Dark Cotton Seed Meal	20.00	22.90	37.10	5.50	5.00
Linseed Meal, old process .....	7.50	35.70	36.00	7.20	5.30
Linseed Meal, new process .....	8.40	36.10	36.70	3.60	5.20
Wheat Bran .....	9.00	15.40	53.90	4.00	5.80
Wheat Middlings .....	5.40	15.40	59.40	4.10	3.20
Mixed Feed (Wheat) ..	7.80	16.90	54.40	4.80	5.30
Ship Stuff (Wheat) ...	5.60	14.60	59.80	5.00	3.70
Corn (grain) .....	2.10	10.50	69.60	5.40	1.50
Corn Meal .....	1.90	9.70	68.70	3.80	1.40
Corn Cobs .....	30.10	2.40	54.90	0.50	1.40
Corn and Cob Meal ....	6.60	8.50	64.80	3.50	1.50
Hominy Feed .....	4.05	10.50	65.30	7.85	2.55
Corn and Oats, equal parts .....	5.70	10.50	64.20	4.40	2.20
Corn and Oats Feeds ..	12.10	8.70	61.70	3.70	3.20
Barley (grain) .....	2.70	12.40	69.80	1.80	2.40
Barley Sprouts .....	10.90	27.20	42.70	1.60	6.30
Barley and Oats, equal parts .....	6.10	12.10	64.75	3.40	2.70

AVERAGE COMPOSITION OF COMMERCIAL  
FEED STUFFS—(Continued.)

NAME OF FEED.	Crude Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.
Oats (grain) .....	9.50	11.80	59.70	5.00	3.00
Oat Feed .....	6.10	16.00	54.90	7.10	3.70
Rice (grain) .....	0.20	7.40	79.20	0.40	0.40
Rice Bran .....	9.50	12.10	49.90	8.80	10.00
Rice Hulls .....	35.70	3.60	38.60	0.70	13.20
Rye (grain) .....	1.70	10.60	72.50	1.70	1.90
Rye Bran .....	3.50	14.70	63.80	2.80	3.60
Wheat (grain) .....	1.80	11.90	71.90	2.10	1.80
Cow Pea .....	4.10	20.80	55.70	1.40	3.20
Cow Pea Hay .....	20.10	16.60	42.20	2.20	7.50
Velvet Beans and Hulls	9.20	19.70	51.30	4.50	3.30
Velvet Bean Hay.....	29.70	14.70	41.00	1.70	5.70
Beggarweed Hay .....	24.70	21.70	30.20	2.30	10.90
Japanese Kudzu Hay..	32.14	17.43	30.20	1.67	6.87
Cotton Seed (whole)..	23.20	18.40	24.70	19.90	3.50
Cotton Seed Hulls.....	44.40	4.00	36.60	2.00	2.60
Gluten Feed .....	5.30	24.00	51.20	10.60	1.10
Beef Scrap .....	.....	44.70	3.28	14.75	29.20

## COMMERCIAL STATE VALUES OF FEED STUFFS FOR 1911.

For the season of 1911 the following "State values" are fixed as a guide to purchasers.

These values are based on the current price of corn, which has been chosen as a standard in fixing the commercial values; the price of corn, to a large extent, governing the price of other feeds, pork, beef, etc.:

### COMMERCIAL VALUES OF FEEDSTUFFS FOR 1910.

Protein, $3\frac{1}{2}$ c. per pound .....	62 $\frac{1}{2}$ c. per unit
Starch and Sngar, $1\frac{1}{2}$ c. per pound.....	25 c. per unit
Fats, $3\frac{1}{2}$ c. per pound .....	62 $\frac{1}{2}$ c per unit

A unit being 20 pounds (1%) of a ton.

Indian corn being the standard @ \$27.50 per ton.

To find the commercial State value, multiply the percentages by the price per unit.

#### EXAMPLE No. 1.

##### HOMINY FEED—

Protein .....	10.50 x 62.5c,	\$ 6.56
Starch and Sugar.....	65.30 x 25.0c,	16.43
Fat .....	7.85 x 62.5c,	4.91

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State value per ton .....\$27.90

#### EXAMPLE No. 2.

##### CORN—

Protein .....	10.50 x 62.5c,	\$ 6.56
Starch and Sngar.....	69.60 x 25.0c,	17.40
Fat .....	5.40 x 62.5c,	3.38

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State value per ton .....\$27.34

## FORMULAS.

There are frequent inquiries for formulas for various crops, and there are hundreds of such formulas published; and, while there are hundreds of "brands," the variations in these grades are surprisingly little. Dozens of "brands" put up by the same manufacturer are identical goods, the only difference being in the name printed on the tag or sack. A good general formula for field or garden might be called a "vegetable formula," and would have the following: Ammonia,  $3\frac{1}{2}\%$ ; available phosphoric acid,  $6\frac{1}{2}\%$ ; and potash,  $7\frac{1}{2}\%$ . The following formulas will furnish the necessary plant food in about the above proportion. I have purposely avoided the use of any fraction of 100 pounds in these formulas to simplify them. Values are taken from price lists furnished by the trade, which we published in our Report of January 1, 1910.

For cotton, corn, sweet potatoes and vegetables: Ammonia,  $3\frac{1}{2}\%$ ; available phosphoric acid,  $6\frac{1}{2}\%$ ; potash,  $7\frac{1}{2}\%$ .

## (A) "VEGETABLE."

## No. 1.

	Per Cent.
800 pounds of Cotton Seed Meal ( $7\frac{1}{2}$ - $2\frac{1}{2}$ - $1\frac{1}{2}$ ).....	3.25 Ammonia
800 pounds of Acid Phosphate (16 per cent)....	6.40 Available
800 pounds of Muriate (or Sulphate) (50 per cent)	7.50 Potash

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2000

State value mixed and bagged.....	\$27.52
Plant Food per ton.....	343 pounds

## No. 2.

	Per Cent.
1000 lbs of Blood and Bone ( $6\frac{1}{2}$ -8).....	} 3.25 Ammonia
400 lbs of Acid Phosphate (16 per cent).....	
600 lbs of Low Grade Sulp. Pot. (26 per cent)...	7.80 Potash

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2000

State value mixed and bagged.....	\$28.45
Plant Food per ton.....	360 pounds

## No. 3.

	Per Cent.
300 lbs of Dried Blood (16 per cent).....	3.25 Ammonia
100 lbs of Nitrate of Soda (17 per cent).....	8.00 Available
1000 lbs of Acid Phosphate (16 per cent).....	7.80 Potash
600 lbs of Low Grade Sulp. Pot. (26 per cent).	

2000

State value mixed and bagged.....\$29.45  
 Plant Food per ton..... 381 pounds

## (B) "FRUIT AND VINE."

## No. 1.

Fruits, Melons, Strawberries, Irish Potatoes:- Ammonia 4 per cent., Available Phosphoric Acid 7 per cent., Potash 10 per cent.

	Per Cent.
1000 lbs of Blood and Bone (6½-8).....	
100 lbs of Nitrate of Soda (17 per cent)....	4 Ammonia
500 lbs of Acid Phosphate (16 per cent).....	8 Available
400 lbs of Muriate of Potash (50 per cent)....	10 Potash

2000

State value mixed and bagged.....\$34.50  
 Plant Food per ton..... 440 pounds

## No. 2.

	Per Cent.
500 lbs of Castor Pomace (6-2 per cent).....	4.00 Ammonia
200 lbs of Sulp. of Am. (25 per cent).....	7.70 Available
900 lbs of Acid Phosphate (16 per cent).....	9.60 Potash
400 lbs of Sulp. of Pot. (48 per cent).....	

2000

State value mixed and bagged.....\$33.76  
 Plant Food per ton..... 426 pounds

## No. 3.

	Per Cent.
500 lbs of Cotton Seed Meal (7½-2½-1½).....	
100 lbs of Nitrate of Soda (17 per cent).....	3.97 Ammonia
100 lbs of Sulp. of Am. (26 per cent).....	8.30 Available
900 lbs of Acid Phosphate (16 per cent).....	8.97 Potash
400 lbs of Sulp. of Potash (48 per cent).....	

2000

State value mixed and bagged.....\$33.57  
 Plant Food per ton..... 425 pounds

## SOIL ANALYSIS.

We frequently have samples of soil sent in for analysis and a request to advise as to the best methods of fertilizing. Excepting in extreme cases, such as Heavy Clays, Pure Sand and Muck Lands, there is but little information to be derived from a soil analysis that would be of benefit to farmers. So much depends on tilth, drainage, culture and other physical conditions that an analysis made under laboratory conditions is of little value. In this connection we quote from the Report of the Indiana Agricultural Experiment Station, Purdue University, of Lafayette, Ind., as follows:

**"SOIL ANALYSIS OF LITTLE VALUE IN SHOWING FERTILIZER REQUIREMENTS.**—The Chemical Department is called upon to answer hundreds of letters of inquiry in relation to agricultural chemical problems from people all over the State. In this connection it might be well to say that there is a widespread idea that the chemist can analyze a sample of soil and, without further knowledge of the conditions, write out a prescription of a fertilizer which will fill the needs of that particular soil.

"The Experiment Station does not analyze samples of soil to determine the fertilizer requirements. There is no chemical method known that will show reliably the availability of the plant food elements present in the soil, as this is a variable factor, influenced by the kind of crop, the type of soil, the climate and biological conditions; hence, we do not recommend this method of testing soil."

The method recommended by the Indiana Station is the field fertilizer test or plot system, in which long, narrow strips of the field to be tested are measured off side by side. The crop is planted uniformly over each. Different fertilizers are applied to the different plots, every third or fourth one being left unfertilized. The produce from these plots is harvested separately and weighed. In this manner the farmer can tell what fer-

tilizer is best suited for his needs. As climatic conditions may influence the yield with different fertilizers, it is best to carry on such tests for more than one year before drawing definite conclusions. There is positively no easier or shorter method of testing the soil that we feel safe in recommending.

Soil can be greatly improved by an intelligent rotation of crops, the conservation of stable manure, and the use of some kind of commercial fertilizer. Farmers need have no fear that the proper application of commercial fertilizer will injure the land.

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#### WATER ANALYSIS.

We frequently analyze water for public use, city, town and neighborhood supplies; springs and artesian wells in which the public is interested; and for individuals when some economic question, boiler, laundry or other industrial use is to be decided. WE DO NOT ANALYZE WATER FOR INDIVIDUAL ACCOUNT WHEREIN THE PUBLIC IS NOT INTERESTED. SUCH SAMPLES SHOULD BE SENT TO A COMMERCIAL LABORATORY. THE STATE LABORATORY DOES NOT COMPETE WITH COMMERCIAL LABORATORIES. Also, we do not make bacteriological examinations nor examinations for disease germs. Such examinations and analyses are made by the State Board of Health at Jacksonville.

We do not make a sanitary analysis, nor a complete quantitative determination, separating each mineral and stating the quantity thereof. Such an analysis would be costly in time and labor, and of no real value to the inquirer. We determine the total dissolved solids in the sample and report them as parts per 1,000,000, naming the principal ingredients in the order of their predominance. We find Calcium Carbonate (lime), Sodium Chloride (salt), Magnesium Sulphate (epsom salts),



Silica (sand), and Iron, is the general order of their predominance, though on the coast, where the total dissolved solids amounts to 5,000 or more parts per 1,000,000, Sodium Chloride (salt) is the predominant substance.

From a knowledge of the chemical analysis of a water, unaccompanied by any further information, no conclusion as to the potability and healthfulness of the water can be deduced.

Therefore, we require the following information to be given in regard to the source of the water:

(1). The source of the water: spring, lake, river, driven well, dug well, bored well, artesian well, or flowing well; and also the depth of the water surface below the top of the soil, and in case wells the depth of the casing.

(2). The locality of the source of the water: town, city or village; or the section, township and range.

(3). The proposed use of the water: city supply, domestic use, laundry, boiler, irrigation or other industrial use.

(4). No sample of water will be analyzed unless the name and address of the sender is on the package for identification.

*We require two gallons of each sample of water, in a new jug, stopped with a new cork, and sent by prepaid express. We will not accept any sample of water for analysis not in a new jug. Vessels previously used for other purposes are never properly cleaned for sending samples of water for analysis. Corks, once used for other substances (molasses, vinegar, whiskey, kerosene, etc.) are never properly cleaned. In sampling a well water, the stagnant water in the pump must first be pumped off. The jug must first be rinsed with the water to be sampled, emptied, and then filled. A sample of spring, river or lake water is best taken (after rinsing the jug) by allowing the jug to fill after immersion some distance under the surface near the center of the body of water.*

NOTE.—We find the waters of the State—springs, wells, driven wells and artesian wells—generally very pure and wholesome, with but little mineral impurity and that such as is not harmful. Except in cases of gross carelessness, in allowing surface water to contaminate the well or spring, the waters of the State are pure and wholesome. The deep wells of the State are noted for their purity and healthfulness.

#### ANALYSIS OF FOODS AND DRUGS.

Samples of Foods and Drugs are drawn under special regulations. Application should be made to the Commissioner of Agriculture or State Chemist for the necessary blanks, instructions, etc., for drawing and transmitting samples of foods and drugs, including drinks of all kinds.

# DEPARTMENT OF AGRICULTURE—DIVISION OF CHEMISTRY.

## FERTILIZER SECTION.

R. E. ROSE, State Chemist.

SPECIAL FERTILIZER ANALYSES, 1910.

L. HEIMBURGER, Assistant Chemist.

Samples taken by Purchaser Under Section 9, Act Approved May 22, 1901.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O.)	BY WHOM SENT.
			Available.	Insoluble.	Total.			
Fertilizer .....	2012	4.71	7.78	3.38	11.16	1.73	16.46	A. B. Bryan, Bowling Green, Fla.
Fertilizer .....	2013	.....	5.48	1.19	6.67	4.20	6.76	J. E. Wilson, Ft. Meade, Fla.
Fertilizer .....	2014	11.12	7.52	1.89	9.41	4.80	6.24	James Campbell, Longwood, Fla.
Fertilizer .....	2015	7.52	7.18	0.32	7.50	3.83	11.80	A. S. Alfred, St. Petersburg, Fla.
Palmetto Ashes.....	2016	.....	.....	.....	.....	.....	2.38	D. E. Haywood, West Palm Beach, Fla.
Blood and Bone.....	2017	.....	.....	.....	5.59	11.15	.....	John H. Blake, Tampa, Fla.
Fertilizer .....	2018	8.32	8.03	0.10	8.13	4.36	10.43	H. A. Perry, Pomona, Fla.
Fertilizer .....	2019	.....	3.23	10.40	13.63	4.98	4.39	H. W. Smith, Zolfo, Fla.
Fertilizer .....	2020	.....	6.60	1.48	8.08	4.02	5.25	R. L. Coward, Ona, Fla.
Fertilizer No. 1.....	2021	.....	2.97	10.49	13.46	4.65	8.57	Lewis, Baldwin & Co., Bowling Green, Fla.
Nitrate of Soda (?) (Pot. Salt)	2022	.....	.....	.....	.....	Trace.	.....	H. C. Hadley, Ft. Myers, Fla.
Fertilizer .....	2023	.....	5.82	1.13	6.95	4.27	8.49	W. C. McCall, Miami, Fla.
Fertilizer No. 2.....	2024	.....	11.60	0.09	11.69	2.98	7.06	Lewis, Baldwin & Co., Bowling Green, Fla.

## SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O)	BY WHOM SENT.
			Available	Insoluble.	Total.			
Fertilizer .....	2025	12.64	10.58	0.80	11.88	5.26	7.62	V. I. Carrier, Crescent City, Fla.
Dried Blood .....	2026	.....	.....	.....	.....	15.80	.....	Joe Cameron, Sanford, Fla.
Fertilizer No. 1.....	2027	7.53	9.21	2.06	11.27	6.09	5.53	C. S. Bushnell, Arcadia, Fla.
Fertilizer No. 1.....	2028	8.93	5.11	0.92	6.03	5.47	10.88	F. A. Buckles, Plant City, Fla.
Fertilizer No. 2.....	2029	7.63	5.48	1.42	6.90	5.62	10.90	F. A. Buckles, Plant City, Fla.
Fertilizer .....	2030	8.46	0.94	0.49	7.43	3.47	8.80	G. Douet, Astatula, Fla.
Ashes "A" .....	2031	.....	.....	.....	.....	.....	4.79	Geo. L. Maris, Sanford, Fla.
Ashes "B" .....	2032	.....	.....	.....	.....	.....	0.87	Geo. L. Maris, Sanford, Fla.
Fertilizer .....	2033	9.75	6.60	1.88	8.48	4.84	6.95	James McKay, Boynton, Fla.
Fertilizer .....	2034	6.95	6.52	3.62	10.14	2.44	13.13	Lewis & Co., Kathleen, Fla.
Fertilizer .....	2035	10.75	0.46	0.82	7.27	2.98	9.13	C. B. Gwynn, Tallahassee, Fla.
Acid Phosphate No. 1.....	2036	.....	14.28	0.27	14.55	.....	.....	L. Helmburger, Tallahassee, Fla.
Acid Phosphate No. 2.....	2037	.....	16.04	0.30	16.34	.....	.....	L. Helmburger, Tallahassee, Fla.
Cotton Seed Meal.....	2038	.....	.....	.....	.....	8.00	.....	Geneva Lumber Co., Eleanor, Fla.
Fertilizer .....	2039	6.46	6.95	1.19	8.14	4.30	7.89	I. N. Cochran, Ona, Fla.
Fertilizer, "Oats" .....	2040	6.13	9.96	0.07	10.03	2.60	4.29	C. B. Gwynn, Tallahassee, Fla.
Fertilizer, "Vegetable".....	2041	8.55	6.09	1.09	7.18	4.08	8.36	C. B. Gwynn, Tallahassee, Fla.
Ashes, "X" .....	2042	.....	.....	.....	.....	.....	6.42	F. F. Dutton, Sanford, Fla.
Fertilizer No. 1.....	2043	6.01	6.72	0.40	7.12	5.98	7.93	Spencer Smith, Arcadia, Fla.
Fertilizer "B. S. F. C.".....	2044	8.91	11.31	1.22	12.63	4.60	6.63	J. P. Coward, Crescent City, Fla.

Fertilizer .....	2045	5.58	4.61	5.20	9.81	6.50	6.61	Geo. A. Bntler, Tavares, Fla.
Fertilizer No. 2.....	2046	8.34	15.30	0.07	15.37	1.00	2.04	Spencer Smith, Arcadia, Fla.
Dried Blood .....	2047					16.35		Ocala Fertz. Co., Ocala, Fla.
Muriate of Potash.....	2048						50.64	Ocala Fertz. Co., Ocala, Fla.
H. O. Sulphate of Potash....	2049						50.64	Ocala Fertz. Co., Ocala, Fla.
L. O. Sulphate of Potash.....	2050						26.44	Ocala Fertz. Co., Ocala, Fla.
Fertilizer No. 1.....	2051		7.18	0.35	7.53	4.42	7.89	Ocala Fertz. Co., Ocala, Fla.
Fertilizer No. 2.....	2052		9.00	0.12	9.12	5.13	8.43	Ocala Fertz. Co., Ocala, Fla.
Fertilizer No. 2.....	2053	8.61	2.66	9.69	12.25	4.18	10.69	C. S. Bushnell, Arcadia, Fla.
Fertilizer .....	2054	7.41	7.37	1.70	9.07	3.83	3.23	E. Patrick, Turkey Creek, Fla.
Fertilizer, "Wilson's Special".....	2055		10.09	0.13	10.22	2.84	3.53	A. L. Wilson & Co., Quincy, Fla.
Acid Phosphate No. 1.....	2056		16.89	0.41	17.80			A. L. Wilson & Co., Quincy, Fla.
Acid Phosphate No. 2.....	2057		17.42	0.08	17.50			A. L. Wilson & Co., Quincy, Fla.
Acid Phosphate .....	2058		15.92	0.21	16.13			J. H. McClinton, Ft. White, Fla.
Kalnit .....	2059						13.42	J. H. McClinton, Ft. White, Fla.
Fertilizer .....	2060		12.07	0.99	13.06	1.53	1.76	W. R. Booth, Campbellton, Fla.
Fertilizer .....	2061	5.81	9.89	0.04	9.93	1.40	14.89	R. F. Klelsen, Yalaha, Fla.
Kalnit No. 1.....	2062						13.88	A. L. Beck, Orlando, Fla.
Kalnit No. 2.....	2063						13.67	A. L. Beck, Orlando, Fla.
Fertilizer No. 3.....	2064		6.42	0.05	8.47	4.04	12.10	A. L. Beck, Orlando, Fla.
Palmetto Ashes .....	2065						8.35	L. B. Thompson, Pensacola, Fla.
Fertilizer .....	2066	9.88	6.91	2.46	9.37	5.23	8.24	C. B. Morrow, Crescent City, Fla.
Fertilizer No. 1.....	2067		10.34	0.94	11.28	2.45	1.57	Milton Cash Store, Milton, Fla.
Fertilizer No. 2.....	2068		10.25	0.90	11.15	2.24	1.71	Milton Cash Store, Milton, Fla.
Acid Phosphate No. 3.....	2069		14.21	1.80	16.01			Milton Cash Store, Milton, Fla.
Fertilizer, "Tomato No. 1".....	2070		3.53	0.49	4.02	8.28	10.04	Walter Waldin, Miami, Fla.
Fertilizer, "Tomato No. 2".....	2071		5.47	4.02	9.49	5.95	6.32	Walter Waldin, Miami, Fla.
Fertilizer, "Dell Tabakimert".....	2072	7.71	5.88	0.06	5.94	8.45	10.01	C. O. A. Orlek, Tallahassee, Fla.
Kalnit .....	2073						14.33	Jas. X. Towles, Athena, Fla.
Fertilizer .....	2074		9.17	0.58	9.78	3.09	3.24	T. J. Ruff, Ft. White, Fla.
Kalnit .....	2075						13.88	T. J. Ruff, Ft. White, Fla.

## SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM SENT.
			Available.	Insoluble.	Total.			
Fertilizer No. 1.....	2076	5.51	6.09	1.07	7.16	5.45	8.72	The Armour Fertz. Co., Jacksonville, Fla.
Fertilizer No. 2.....	2077	6.03	8.36	0.24	8.60	4.32	12.32	The Armour Fertz. Co., Jacksonville, Fla.
Fertilizer No. 3.....	2078	8.47	6.62	0.68	7.30	3.01	10.71	The Armour Fertz. Co., Jacksonville, Fla.
Fertilizer No. 4.....	2079	5.82	6.21	0.58	6.79	3.24	8.49	The Armour Fertz. Co., Jacksonville, Fla.
Fertilizer No. 5.....	2080	5.44	5.46	1.10	6.56	5.19	5.62	The Armour Fertz. Co., Jacksonville, Fla.
Dried Blood .....	2081	.....	.....	.....	.....	15.53	.....	A. L. Beck, Orlando, Fla.
Fertilizer, "Potato Special"...	2082	.....	7.32	2.73	10.05	4.01	12.22	J. W. Teasley, Tampa, Fla.
Cotton Seed Meal.....	2083	.....	.....	.....	.....	7.28	.....	John J. Evans, Evans, Fla.
Fertilizer No. 1.....	2084	11.73	8.80	0.15	8.95	2.50	2.15	C. A. Green, Milton, Fla.
Fertilizer No. 2.....	2085	13.40	9.40	0.55	9.95	1.83	2.97	C. A. Green, Milton, Fla.
Fertilizer No. 3.....	2086	12.19	9.77	1.46	11.23	3.58	2.19	C. A. Green, Milton, Fla.
Fertilizer, "Celery Special"...	2087	.....	6.20	3.95	10.15	6.53	5.88	J. W. Teasley, Tampa, Fla.
Fertilizer .....	2088	.....	8.12	1.06	9.18	2.97	2.37	R. F. Howard, Tallahassee, Fla.
Fertilizer, "C. B. & Q. 92530"...	2089	7.12	8.72	1.02	9.74	4.89	8.50	Munroe & Chambliss, Ocala, Fla.

Fertilizer, "Grand Trunk 10980" .....	2090	7.54	7.70	1.45	9.15	4.95	8.61	Munroe & Chambliss, Ocala, Fla.
Fertilizer, "A.T. & S. F. 28910" .....	2091	6.79	9.42	1.50	10.92	4.70	7.89	Munroe & Chambliss, Ocala, Fla.
Dried Blood .....	2092	.....	.....	.....	.....	16.26	.....	A. L. Beck, Orlando, Fla.
Fertilizer .....	2093	8.67	5.78	1.73	7.51	4.97	9.19	W. A. Varn, Bartow, Fla.
Fertilizer No. 1 .....	2094	7.92	8.30	0.02	8.32	4.47	11.77	J. J. Stephens, Castalia, Fla.
Fertilizer No. 2 .....	2095	5.98	8.11	0.12	8.23	4.25	12.33	J. J. Stephens, Castalia, Fla.
Fertilizer No. 3 .....	2096	16.08	6.72	1.09	7.81	3.60	6.17	J. J. Stephens, Castalia, Fla.
Fertilizer No. 4 .....	2097	19.03	6.35	1.15	7.50	3.14	7.05	J. J. Stephens, Castalia, Fla.
Cotton Seed Meal, "C. M. & S. P. No. 18110" .....	2098	.....	.....	.....	.....	7.34	.....	Am. Sumatra Tobacco Co., Quincy, Fla.
Cotton Seed Meal, "L. & N. 10328" .....	2099	.....	.....	.....	.....	7.32	.....	Am. Sumatra Tobacco Co., Quincy, Fla.
Cotton Seed Meal, "S. A. L. 24772" .....	2100	.....	.....	.....	.....	8.01	.....	Am. Sumatra Tobacco Co., Quincy, Fla.
Cotton Seed Meal, "A. C. L. 23157" .....	2101	.....	.....	.....	.....	7.15	.....	Am. Sumatra Tobacco Co., Quincy, Fla.
Fertilizer .....	2102	7.54	6.04	3.61	9.65	2.18	11.21	Names McVicker, Cobb, Fla.
Fertilizer No. 1 .....	2103	15.82	12.14	0.63	12.77	2.15	1.64	J. F. Lannous, Galloway, Fla.
Fertilizer No. 2 .....	2104	.....	11.34	0.73	12.07	1.87	1.59	J. F. Lannous, Galloway, Fla.
Fertilizer .....	2105	.....	5.96	0.67	6.63	6.38	13.63	A. J. Mixson, Williston, Fla.
Cotton Seed Meal No. 1 .....	2106	.....	.....	.....	.....	7.49	.....	Gadsden Shade Tobacco Co., Quincy, Fla.
Cotton Seed Meal No. 2 .....	2107	.....	.....	.....	.....	7.48	.....	Gadsden Shade Tobacco Co., Quincy, Fla.
Thomas Slag Phosphate, "Sou. 11475" .....	2108	.....	6.38	12.18	18.56	.....	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal, "L. & N. 12218" .....	2109	.....	.....	.....	.....	6.92	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal, "I. C. 14534" .....	2110	.....	.....	.....	.....	7.01	.....	Kraus, McFarlin Co., Quincy, Fla.

## SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM SENT.
			Available.	Insoluble.	Total.			
Cotton Seed Meal, "Sou. 13983" .....	2111	.....	.....	.....	.....	6.95	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal, "A. C. L. 23157" .....	2112	.....	.....	.....	.....	7.19	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal, "P. R. R. 4783" .....	2113	.....	.....	.....	.....	6.96	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal, "M. P. 39010" .....	2114	.....	.....	.....	.....	7.17	.....	Kraus, McFarlin Co., Quincy, Fla.
Fertilizer .....	2115	8.81	7.54	0.37	7.91	4.95	9.03	A. H. Perry, Pomona, Fla.
Fertilizer .....	2116	7.41	8.29	0.16	8.45	3.30	11.44	John T. Richards, Orlando, Fla.
Fertilizer .....	2117	.....	3.97	2.30	6.27	7.00	7.03	R. E. Rose, Tallahassee, Fla.
Cotton Seed Meal (G. T. No. 4461) .....	2118	.....	.....	.....	.....	7.35	.....	Lewis Bear Co., Pensacola, Fla.
Cotton Seed Meal (A. C. L. No. 33350) .....	2119	.....	.....	.....	.....	7.25	.....	Lewis Bear Co., Pensacola, Fla.
Cotton Seed Meal "W" .....	2120	.....	.....	.....	.....	4.38	.....	D. M. Lowery, Tallahassee, Fla.
Cotton Seed Meal "B" .....	2121	.....	.....	.....	.....	4.28	.....	D. M. Lowery, Tallahassee, Fla.
Fertilizer .....	2122	12.17	8.55	0.27	8.82	2.08	2.48	W. A. Galloway, Ferry, Fla.
Fertilizer .....	2123	12.76	9.25	0.39	9.64	1.65	1.86	C. T. Jenkins, Ferry, Fla.
Acid Phosphate .....	2124	.....	15.71	0.85	16.56	.....	.....	J. D. Johnson, Holt, Fla.



Nitrate of Soda .....	2125	.....	.....	.....	18.60	.....	J. D. Johnson, Holt, Fla.
Peruvian Guano (M. C. No. 48235) .....	2126	.....	9.21	5.43	14.64	6.50 2.05	Kraus, McFarlin Co., Quincy, Fla.
Peruvian Guano (Sou. No. 132963) .....	2127	.....	10.85	5.32	16.17	6.99 2.48	Kraus, McFarlin Co., Quincy, Fla.
Peruvian Guano (M. & W. No. 60028) .....	2128	.....	10.17	4.01	14.18	6.96 2.38	Kraus, McFarlin Co., Quincy, Fla.
Basic Slag (C. & O. No. 5296) .....	2129	.....	5.53	12.00	17.53	.....	Kraus, McFarlin Co., Quincy, Fla.
Basic Slag (S. A. L. No. 18731) .....	2130	.....	5.84	11.88	17.72	.....	Kraus, McFarlin Co., Quincy, Fla.
Basic Slag (Sou. No. 9947) .....	2131	.....	6.23	11.97	18.20	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (R. I. C. No. 60144) .....	2132	.....	.....	.....	.....	7.24	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (I. C. No. 25132) .....	2133	.....	.....	.....	.....	7.35	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (B. & O. No. 70177) .....	2134	.....	.....	.....	.....	7.15	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (N. & W. No. 60396) .....	2135	.....	.....	.....	.....	7.30	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (M. C. No. 44538) .....	2136	.....	.....	.....	.....	7.52	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal .....	2137	.....	.....	.....	.....	7.85	Mrs. H. W. Thomas, DeFuniak, Fla.
Fertilizer .....	2138	.....	11.15	0.35	11.50	1.70 2.21	Charles Foster, Holt, Fla.
Fertilizer .....	2139	12.15	9.34	0.70	10.10	2.23 2.04	Milton Foster, Red Rock, Fla.
Cotton Seed Meal .....	2140	.....	.....	.....	.....	7.56	Purnon Ohappell, Quincy, Fla.
Cotton Seed Meal .....	2141	.....	.....	.....	.....	6.78	T. G. Lambert, Quincy, Fla.
Cotton Seed Meal .....	2142	.....	.....	.....	.....	7.62	L. M. Owens, Quincy, Fla.
Cotton Seed Meal .....	2143	.....	.....	.....	.....	7.54	F. L. Owens, Quincy, Fla.
Cotton Seed Meal .....	2144	.....	.....	.....	.....	6.96	H. F. Dykes, Quincy, Fla.
Cotton Seed Meal .....	2145	.....	.....	.....	.....	7.52	M. O. Flake, Quincy, Fla.
Cotton Seed Meal .....	2146	.....	.....	.....	.....	7.60	C. W. Owens, Quincy, Fla.

## SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM SENT.
			Available	Insoluble.	Total.			
Cotton Seed Meal (C. of Ga. No. 4662) .....	2147	.....	.....	.....	.....	6.81	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (L. & N. No. 67183) .....	2148	.....	.....	.....	.....	7.07	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (Grand Trunk No. 12573) .....	2149	.....	.....	.....	.....	7.40	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (M. L. & T. No. 30606) .....	2150	.....	.....	.....	.....	7.27	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (L. & N. No. 17759) .....	2151	.....	.....	.....	.....	6.92	.....	Kraus, McFarlin Co., Quincy, Fla.
Fertilizer No. 1 .....	2152	15.36	9.29	1.75	11.04	2.57	1.36	T. G. Lambert, Quincy, Fla.
Fertilizer No. 2 .....	2153	10.15	11.07	1.29	12.36	.....	4.61	T. G. Lambert, Quincy, Fla.
Fertilizer .....	2154	13.61	8.89	0.71	9.60	2.20	3.01	T. W. Bryan, Sullivan, Fla.
Fertilizer No. 1 .....	2155	.....	9.80	0.02	9.82	1.59	2.81	W. P. Bryan, Sullivan, Fla.
Fertilizer No. 2 .....	2156	.....	12.13	0.22	12.35	2.02	1.88	W. P. Bryan, Sullivan, Fla.
Muriate of Potash .....	2157	.....	.....	.....	.....	.....	68.88	W. P. Bryan, Sullivan, Fla.
Fertilizer No. 3 .....	2158	11.11	11.28	0.59	11.87	3.36	3.07	W. P. Bryan, Sullivan, Fla.
Nitrate of Soda .....	2159	.....	.....	.....	.....	18.39	.....	W. P. Bryan, Sullivan, Fla.
Fertilizer .....	2160	11.28	8.50	0.05	8.55	2.13	2.35	T. W. Bryan, Sullivan, Fla.
Fertilizer .....	2161	.....	15.62	1.71	17.33	0.95	2.01	Ernest Amos, Tallahassee, Fla.

Fertilizer .....	2162	11.79	13.05	1.16	14.21	1.90	1.74	John Johnson, Sullivan, Fla.
Muriate of Potash .....	2163	.....	.....	.....	.....	.....	50.20	John Johnson, Sullivan, Fla.*
Fertilizer (Hanna No. 1) .....	2104	.....	11.48	1.70	13.18	.....	3.72	A. L. Wilson Co., Quincy, Fla.
Fertilizer .....	2165	.....	6.04	1.85	7.59	3.15	10.43	C. B. Dean, Lakeland, Fla.
Fertilizer No. 1B .....	2166	.....	11.48	0.12	11.50	1.50	2.75	C. H. Scott, Bascom, Fla.
Fertilizer No. 2M .....	2167	.....	10.68	0.61	11.29	2.38	2.50	C. H. Scott, Bascom, Fla.
Fertilizer .....	2168	10.17	10.15	0.28	10.43	1.54	2.29	W. E. Foster, Red Rock, Fla.
Fertilizer (Com. Sam. "Cotton Boll") .....	2169	.....	9.71	1.03	10.74	2.22	1.35	T. & L. M. Owens, Quincy, Fla.
Fertilizer (Com. Sam. "Com- plete Guano..") .....	2170	.....	9.43	0.30	9.73	4.25	1.94	H. F. Dykes and J. L. Owens, Quincy, Fla.
Cotton Seed Meal .....	2171	.....	.....	.....	.....	7.95	.....	W. T. Owens, Quincy, Fla.
Cotton Seed Meal .....	2172	.....	.....	.....	.....	5.10	.....	L. Helmburger, Tallahassee, Fla.
Nitrate of Soda .....	2173	.....	.....	.....	.....	18.02	.....	L. Helmburger, Tallahassee, Fla.
Fertilizer (Com. Sample "Meal Mixt.") .....	2174	.....	9.05	0.93	9.98	2.55	1.47	W. C. J. L. & W. T. Owens, H. F. Dykes, Quincy, Fla.
Acid Phosphate (Com. Sample)	2175	.....	17.05	0.33	17.98	.....	.....	P. Chappell, J. L. & L. N. Owens, Quincy, Fla.
Acid Phosphate .....	2176	.....	17.75	0.06	17.82	.....	.....	W. C. Owens, Quincy, Fla.
Fertilizer .....	2177	.....	9.58	2.24	11.82	2.31	1.51	W. C. Owens, Quincy, Fla.
Fertilizer .....	2178	10.75	12.10	0.65	12.75	2.55	0.83	J. J. Cooley, Sullivan, Fla.
Acid Phosphate .....	2179	.....	15.81	1.02	16.83	.....	.....	J. J. Cooley, Sullivan, Fla.
Fertilizer ("Meal Mixt.") .....	2180	.....	7.71	0.46	8.17	2.17	2.69	J. P. Rhoads, Holt, Fla.
Acid Phosphate ("R. & E.") .....	2181	.....	15.98	0.14	17.12	.....	.....	J. P. Rhoads, Holt, Fla.
Acid Phosphate ("W. C. L.") .....	2182	.....	15.58	0.14	15.72	.....	.....	J. P. Rhoads, Holt, Fla.
Fertilizer ("Blood Mixt.") .....	2183	.....	8.57	0.02	9.19	2.65	3.39	J. P. Rhoads, Holt, Fla.
Fertilizer ("Bone Comp. W. C. L.") .....	2184	8.10	11.20	0.92	12.12	2.08	2.70	J. P. Rhoads, Holt, Fla.
Acid Phosphate ("J. G.") .....	2185	.....	15.42	0.54	15.95	.....	.....	J. Griffith, Holt, Fla.
Fertilizer ("Cotton Boll") .....	2186	.....	9.72	0.25	9.97	2.15	3.18	J. Griffith, Holt, Fla.
Fertilizer ("Mobile Stand. J. G.") .....	2187	.....	12.50	0.13	12.63	2.05	1.77	J. Griffith, Holt, Fla.

SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O)	BY WHOM SENT.
			Available.	Insoluble.	Total.			
Potash Salt No. 1 .....	2188	.....	.....	.....	.....	.....	50.80	J. E. Dubulsson & Bro., Pensacola, Fla.
Potash Salt No. 2 .....	2189	8.70	.....	.....	.....	.....	19.83	J. E. Dubulsson & Bro., Pensacola, Fla.
Sulphate of Potash .....	2190	.....	.....	.....	.....	.....	51.88	John H. Blake, Tampa, Fla.
Fertilizer "A" .....	2191	6.03	7.00	0.19	7.19	4.59	12.16	John H. Blake, Tampa, Fla.
Fertilizer "B" .....	2192	6.27	7.00	0.22	7.22	3.54	13.63	John H. Blake, Tampa, Fla.
Cotton Seed Meal .....	2193	.....	.....	.....	.....	7.49	.....	A. L. Willson Co., Quincy, Fla.
Fertilizer .....	2194	11.36	8.01	0.84	8.85	2.05	5.90	McCloy H. Martin, Sanford, Fla.
Dried Blood .....	2195	.....	.....	.....	.....	16.25	.....	A. N. Hoofnagle, Ft. Pierce, Fla.
Bone Meal .....	2196	.....	8.25	15.49	23.74	3.03	.....	A. N. Hoofnagle, Ft. Pierce, Fla.
Palmetto Ashes .....	2197	.....	.....	.....	.....	.....	0.51	L. B. Thompson, Pensacola, Fla.
Cotton Seed Meal .....	2198	.....	.....	.....	.....	7.20	.....	B. A. Pucket, Quincy, Fla.
Cotton Seed Meal .....	2199	.....	.....	.....	.....	7.27	.....	M. H. Mosley, Quincy, Fla.
H. W. Ashes "A" .....	2200	.....	.....	.....	.....	.....	2.38	The South. Fertz. Co., Orlando, Fla.
H. W. Ashes "B" .....	2201	.....	.....	.....	.....	.....	4.50	The South. Fertz. Co., Orlando, Fla.
Fertilizer No. 1 .....	2202	5.03	7.10	0.80	7.90	4.25	12.02	John H. Blake, Tampa, Fla.
Fertilizer No. 2 .....	2203	7.00	7.90	0.80	8.70	4.39	12.55	John H. Blake, Tampa, Fla.
Fertilizer No. 4 .....	2204	10.78	9.63	1.12	10.75	1.66	2.13	Milton Cash Store, Milton, Fla.
Cotton Seed Meal .....	2205	.....	.....	.....	.....	7.40	.....	K. W. Johnson, Lakewood, Fla.

Cotton Seed Meal	2206	.....	.....	.....	.....	7.19	.....	R. B. Campbell, Tampa, Fla.
Flsh	2207	.....	4.34	1.81	6.15	10.04	.....	R. B. Campbell, Tampa, Fla.
Fertilizer No. 1	2208	4.46	4.93	6.12	11.05	4.65	6.91	R. B. Campbell, Tampa, Fla.
Fertilizer No. 2	2209	4.30	6.86	5.29	12.15	4.25	6.71	R. B. Campbell, Tampa, Fla.
Fertilizer No. 3	2210	2.50	6.59	5.21	11.80	2.65	12.19	R. B. Campbell, Tampa, Fla.
Fertilizer No. 4	2211	2.02	7.85	2.95	10.80	4.12	13.09	R. B. Campbell, Tampa, Fla.
Fertilizer No. 5	2212	7.56	7.16	0.17	7.33	2.32	4.71	R. B. Campbell, Tampa, Fla.
Fertilizer No. 6	2213	6.08	7.79	3.61	11.40	2.59	2.89	R. B. Campbell, Tampa, Fla.
Nitrate of Soda	2214	.....	.....	.....	.....	17.00	.....	L. Helmburger, Tallahassee, Fla.
Fertilizer (L. & N. No. 8992)	2215	10.98	10.99	0.75	11.74	2.81	3.30	Kraus, McFarlin Co., Quincy, Fla.
Fertilizer (L. & N. No. 91015)	2216	10.41	12.41	0.27	12.68	1.73	3.24	Kraus, McFarlin Co., Quincy, Fla.
Fertilizer (L. & N. No. 95405)	2217	10.16	9.52	0.43	9.95	2.91	5.89	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (D. & H. Co. 15700)	2218	.....	.....	.....	.....	7.90	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (S. T. L. & S. F. No. 33959)	2219	.....	.....	.....	.....	8.30	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (A. C. L. 27631)	2220	.....	.....	.....	.....	7.50	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (Penn. No. 16503)	2221	.....	.....	.....	.....	8.20	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (M. K. & T. 10517)	2222	.....	.....	.....	.....	7.72	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (B. C. R. & N. 48007)	2223	.....	.....	.....	.....	7.47	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (Penn. No. 62392)	2224	.....	.....	.....	.....	7.17	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (S. T. L. & S. F. No. 31211)	2225	.....	.....	.....	.....	7.80	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (A. C. L. No. 18466)	2226	.....	.....	.....	.....	7.25	.....	Kraus, McFarlin Co., Quincy, Fla.
Cotton Seed Meal (70 sacks R. I. C. No. 60144)	2227	.....	.....	.....	.....	7.48	.....	Kraus, McFarlin Co., Quincy, Fla.

## SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O)	BY WHOM SENT.
			Available.	Insoluble.	Total.			
Cotton Seed Meal (12 sacks R. I. C. No. 60144) .....	2228	.....	.....	.....	.....	4.75	.....	Kraus, McFarlin Co., Quincy, Fla.
Fertilizer .....	2229	.....	11.43	1.27	12.70	2.40	2.47	J. J. White, Graceville, Fla.
Fertilizer No. 1 .....	2230	.....	11.84	0.59	12.43	1.99	2.95	T. N. Darsey, Concord, Fla.
Fertilizer No. 2 .....	2231	.....	4.22	3.89	8.11	3.26	9.93	T. N. Darsey, Concord, Fla.
Fertilizer No. 3 .....	2232	.....	8.09	0.75	8.84	2.69	6.17	T. N. Darsey, Concord, Fla.
Fertilizer No. 4 .....	2233	.....	9.24	0.31	9.55	.....	5.89	T. N. Darsey, Concord, Fla.
Cotton Seed Meal .....	2234	.....	.....	.....	.....	7.98	.....	T. N. Darsey, Concord, Fla.
Fertilizer .....	2235	.....	8.42	2.38	10.80	4.49	4.18	E. L. Beven, Crescent City, Fla.
Basic Slag (A. C. L. No. 31479) .....	2236	.....	5.51	8.63	14.14	.....	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Fertilizer (C. R. I. & P. No. 56943) .....	2237	15.08	11.05	0.85	11.90	2.60	2.81	Am. Sumatra Tob. Co., Quincy, Fla.
Fertilizer (N. Y. C. & H. R. 98750) .....	2238	15.44	10.53	1.17	11.70	2.27	3.57	Am. Sumatra Tob. Co., Quincy, Fla.
Peruvian Guano (P. & R. No. 3187) .....	2239	.....	7.89	7.92	15.81	6.78	2.37	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (I. C. 17929) .....	2240	.....	.....	.....	.....	7.27	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (P. R. R. 99856) .....	2241	.....	.....	.....	.....	7.50	.....	Am. Sumatra Tob. Co., Quincy, Fla.

Cotton Seed Meal (G. S. & F. 2353)	2242	.....	.....	.....	.....	7.55	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (Sou. 138082)	2243	.....	.....	.....	.....	7.38	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (M. C. 95810)	2244	.....	.....	.....	.....	7.65	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (Con. of Ga. 1682)	2245	.....	.....	.....	.....	7.95	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (A. G. S. 12391)	2246	.....	.....	.....	.....	7.58	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (G. F. & A. 692)	2247	.....	.....	.....	.....	7.40	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (I. C. 21756)	2248	.....	.....	.....	.....	7.37	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (C. H. & D. Ry. 46572)	2249	.....	.....	.....	.....	7.58	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (N. & W. 22010)	2250	.....	.....	.....	.....	7.45	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (Wabash 62803)	2251	.....	.....	.....	.....	7.38	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (N. Y., N. H. & H. No. 77734)	2252	.....	.....	.....	.....	7.58	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (Erie 73482)	2253	.....	.....	.....	.....	7.60	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal (Penn. 581824)	2254	.....	.....	.....	.....	7.60	.....	Am. Sumatra Tob. Co., Quincy, Fla.
Fertilizer (N. Y., N. H. & H. 82476)	2255	13.20	10.01	0.84	10.85	2.83	4.32	Am. Sumatra Tob. Co., Quincy, Fla.
Fertilizer (M. & O. 8407)	2256	14.51	10.68	1.21	11.89	2.45	3.20	Am. Sumatra Tob. Co., Quincy, Fla.
Fertilizer (Penn. 12049)	2257	11.87	9.99	0.96	10.95	2.86	5.29	Am. Sumatra Tob. Co., Quincy, Fla.
Cotton Seed Meal	2258	.....	.....	.....	.....	7.89	.....	Ide & Burr, Quincy, Fla.
Fertilizer	2259	.....	12.83	0.84	13.67	2.40	3.01	G. S. Gregory, Quincy, Fla.

SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O)	BY WHOM SENT.
			Available	Insoluble.	Total.			
Cotton Seed Meal .....	2260	.....	.....	.....	.....	8.04	.....	G. S. Gregory, Quincy, Fla.
Fertilizer .....	2261	6.64	6.58	4.30	9.88	2.22	11.24	J. F. Lemons, Galloway, Fla.
Fertilizer .....	2262	12.00	9.19	0.65	9.84	1.91	2.33	D. S. Franklin, Cobb, Fla.
Acid Phosphate .....	2263	.....	18.55	4.68	23.23	.....	.....	D. S. Franklin, Cobb, Fla.
Fertilizer .....	2264	10.99	12.01	0.39	12.40	1.23	1.43	E. M. Pitts, Red Rock, Fla.
Fertilizer .....	2265	8.01	12.02	0.88	12.90	3.71	2.00	G. C. Johnson, Cobb, Fla.
Fertilizer .....	2266	9.75	7.21	0.52	7.73	2.30	3.05	W. W. Boyett, Otahtite, Fla.
Fish .....	2267	.....	4.72	16.95	21.67	5.08	.....	W. H. Hansen, Jensen, Fla.
"Ashes" No. 204 (?) .....	2268	.....	.....	.....	.....	.....	19.90	The South. Fertz. Co., Orlando, Fla.
Fertilizer No. 205 .....	2269	9.43	6.49	0.37	6.86	2.49	7.14	The South. Fertz. Co., Orlando, Fla.
Fertilizer .....	2270	.....	10.94	0.57	11.51	2.50	2.07	H. L. Green, Bascom, Fla.
Fertilizer .....	2271	.....	6.13	2.19	8.32	4.50	7.17	N. A. Carlson, Hollandale, Fla.
Cotton Seed Meal .....	2272	.....	.....	.....	.....	7.61	.....	L. Helmburger, Tallahassee, Fla.
Fertilizer No. 1 .....	2273	12.46	10.73	0.41	11.14	2.97	3.35	Kraus, McFarlin Co., Quincy, Fla.
Fertilizer No. 2 (L. & N. 91015) .....	2274	8.92	12.04	0.26	12.30	1.61	2.95	Kraus, McFarlin Co., Quincy, Fla.
Fertilizer .....	2275	.....	14.68	0.07	14.75	2.69	1.20	A. F. Moore, Hester, Fla.
Fertilizer .....	2276	4.90	6.97	0.96	7.93	4.46	12.25	J. H. Blake, Tampa, Fla.
Muriate of Potash .....	2277	.....	.....	.....	.....	.....	51.36	A. E. Taylor, Wilmarth, Fla.
Fertilizer No. 1 .....	2278	10.40	9.04	0.81	9.85	1.93	2.33	J. W. Kelley, Otahtite, Fla.
Fertilizer No. 2 .....	2279	10.39	8.63	0.90	9.53	2.23	2.29	J. W. Kelley, Otahtite, Fla.



Fertilizer No. 1 .....	2280	10.45	9.94	0.52	9.93	4.65	4.27	J. R. Miller, Cobb, Fla.
Fertilizer No. 2 .....	2281	8.82	9.51	1.16	10.57	2.83	6.03	J. R. Miller, Cobb, Fla.
Fertilizer No. 1 .....	2282	.....	15.50	1.02	10.52	1.13	0.33	A. D. Campbell, Chisley, Fla.
Fertilizer .....	2283	.....	2.80	9.53	12.33	2.33	14.76	Frank Bartheis, Gotha, Fla.
Cotton Seed Meal .....	2284	.....	.....	.....	.....	7.65	.....	Jake Brown, Ocala, Fla.
Cotton Seed Meal No. 3 .....	2285	.....	.....	.....	.....	7.50	.....	D. D. Martin, Otabite, Fla.
Muriate of Potash No. 1 .....	2286	.....	.....	.....	.....	49.45	.....	D. D. Martin, Otabite, Fla.
Acid Phosphate No. 2 .....	2287	.....	16.16	1.59	17.75	.....	.....	D. D. Martin, Otabite, Fla.
Fertilizer .....	2288	.....	10.02	0.54	10.56	4.99	4.57	M. C. Herndon, Bristol, Fla.
Fertilizer .....	2289	12.64	11.76	1.54	13.30	2.44	2.10	J. S. Keith, Black, Ala.
Fertilizer .....	2290	8.34	10.14	2.61	12.75	1.80	1.33	H. A. Jones, Milton, Fla.
Fertilizer .....	2291	.....	3.56	10.72	14.28	3.62	6.09	J. W. Walston, Bowling Green, Fla.
Fertilizer .....	2292	11.02	9.93	2.61	12.54	1.91	2.17	W. B. H. Adams, Milton, Fla.
Fertilizer .....	2293	.....	11.75	0.17	11.92	2.83	1.71	Geo. W. Moore, Sr., Hester, Fla.
Fertilizer .....	2294	.....	7.01	1.01	8.02	3.79	6.71	M. H. Tanner, Plant City, Fla.
Fertilizer "W. N. B. No. 1" .....	2295	.....	8.55	2.42	10.97	2.23	1.94	A. L. Wilson Co., Quincy, Fla.
Fertilizer .....	2296	8.88	13.87	2.58	16.45	3.02	2.40	G. C. Johnson, Hester, Fla.
Fertilizer .....	2297	10.47	2.11	0.82	2.93	9.50	0.99	J. G. May, Ft. Pierce, Fla.
Fertilizer .....	2298	4.87	8.53	1.00	9.53	5.53	13.16	H. A. Ward, Winter Park, Fla.
Fertilizer .....	2299	10.83	10.13	0.91	11.04	4.10	2.38	W. P. Johnson, Cobb, Fla.
Fertilizer .....	2300	5.53	7.29	0.31	7.60	4.78	9.48	K. M. Stokes, Evans, Fla.
Fertilizer .....	2301	13.97	9.82	0.17	9.99	2.82	1.65	George W. Moore, Hester, Fla.
Fertilizer (Home Mixt.) .....	2302	.....	8.06	0.09	8.15	1.94	9.80	H. A. Jones, Milton, Fla.
Guano No. 1 .....	2303	40.30	3.35	5.90	9.25	2.11	1.68	W. R. Alexander, Marco, Fla.
Guano No. 2 .....	2304	19.57	8.32	0.12	8.44	3.13	0.12	W. R. Alexander, Marco, Fla.
Fertilizer .....	2305	4.71	7.37	0.44	7.81	3.49	10.22	A. S. Nelson, Dunedin, Fla.
Fertilizer .....	2306	15.44	9.49	0.54	10.03	3.58	1.45	J. S. Howell, Chumuckla, Fla.
Fertilizer .....	2307	4.57	2.02	6.99	9.01	3.99	10.51	V. I. Carrier, Crescent City, Fla.
Fertilizer .....	2308	8.54	4.26	2.55	6.81	4.24	10.22	C. B. Morrow, Crescent City, Fla.
Fertilizer .....	2309	11.51	10.26	0.12	10.38	2.45	1.74	A. F. Moore, Hester, Fla.
Acid Phosphate No. 1 .....	2310	.....	15.43	0.55	15.98	.....	.....	A. N. Kelley, Holt, Fla.
Fertilizer No. 2 .....	2311	10.42	7.18	0.70	7.88	.....	4.88	A. N. Kelley, Holt, Fla.

## SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM SENT.
			Available.	Insoluble.	Total.			
Fertilizer No. 3 .....	2312	11.51	8.39	0.33	8.72	1.67	2.44	A. N. Kelley, Holt, Fla.
Fertilizer No. 1 (10-3-3) .....	2313	9.58	10.43	0.51	10.94	3.72	3.61	Bristol Bargain Store, Bristol, Fla.
Fertilizer No. 2 (10-2-2) .....	2314	10.90	9.86	0.42	10.28	2.61	2.77	Bristol Bargain Store, Bristol, Fla.
Fertilizer No. 3 (6-6-2) .....	2315	9.96	6.07	0.42	6.49	5.48	3.06	Bristol Bargain Store, Bristol, Fla.
Fertilizer No. 4 (10-0-4) .....	2316	9.70	9.83	0.79	10.62	.....	4.38	Bristol Bargain Store, Bristol, Fla.
Raw Bone .....	2317	.....	.....	.....	23.57	4.61	.....	A. L. Beck, Orlando, Fla.
Fertilizer .....	2318	6.39	14.84	3.01	14.85	3.94	12.41	J. W. Wright, DeLand, Fla.
Fertilizer .....	2319	14.13	7.10	0.50	7.60	3.64	10.22	H. A. Perry, Pomona, Fla.
Fertilizer No. 1 .....	2320	.....	10.88	4.50	15.38	4.42	4.40	Milton Cash Store, Milton, Fla.
Fertilizer No. 2 .....	2321	.....	10.81	4.40	10.21	4.23	4.30	Milton Cash Store, Milton, Fla.
Fertilizer No. 1 .....	2322	8.0	7.96	1.86	9.82	5.17	7.12	Armour Fertz. Wks., Jacksonville, Fla.
Fertilizer No. 2 .....	2323	9.58	7.21	1.43	8.64	4.10	5.95	Armour Fertz. Wks., Jacksonville, Fla.
Fertilizer No. 3 .....	2324	8.82	6.37	0.66	7.03	2.48	11.27	Armour Fertz. Wks., Jacksonville, Fla.
Fertilizer No. 4 .....	2325	8.94	6.54	0.70	7.24	3.23	10.06	Armour Fertz. Wks., Jacksonville, Fla.
Fertilizer No. 5 .....	2326	5.40	8.34	0.25	8.59	4.23	12.41	Armour Fertz. Wks., Jacksonville, Fla.
Fertilizer No. 1 .....	2327	7.54	6.25	0.45	6.70	4.15	6.42	K. Richardson, Coconut Grove, Fla.
Fertilizer No. 2 .....	2328	8.35	6.70	1.76	8.46	4.27	9.87	K. Richardson, Coconut Grove, Fla.
Fertilizer No. 8 .....	2329	3.85	.....	.....	14.11	9.39	2.83	K. Richardson, Coconut Grove, Fla.
Fertilizer No. 10 .....	2330	.....	9.44	0.22	9.66	3.25	3.03	A. D. Campbell, Chipley, Fla.
Fertilizer No. 20 .....	2331	.....	9.94	0.23	10.17	2.19	6.54	A. D. Campbell, Chipley, Fla.

Fertilizer No. 30.....	2332	.....	9.76	0.31	10.07	2.55	5.32	A. D. Campbell, Chipley, Fla.
Fertilizer .....	2333	13.13	6.68	0.28	6.96	2.73	13.01	H. A. Perry, Pomona, Fla.
Fertilizer .....	2334	.....	8.44	0.73	9.17	2.78	6.08	B. E. McLin, Tallahassee, Fla.
Fertilizer .....	2335	5.35	.....	.....	11.88	6.95	4.50	J. G. May, Ft. Pierce, Fla.
Fertilizer .....	2336	.....	5.95	1.37	7.32	4.51	4.45	J. R. Williams, Citra, Fla.
Fertilizer .....	2337	6.78	.....	.....	1.41	5.79	7.76	C. F. Wolf, Jensen, Fla.
Blood and Bone.....	2338	.....	.....	.....	3.19	10.32	.....	Jno. H. Blake, Tampa, Fla.
Fish Scrap No. 1.....	2339	13.68	.....	.....	12.92	8.55	.....	Pensacola Rendering Co., Pensacola, Fla.
Fish Scrap No. 2.....	2340	10.64	.....	.....	13.58	10.03	.....	Pensacola Rendering Co., Pensacola, Fla.
Dried Blood (N. Y. C. & H. R. No. 91406)	2341	.....	.....	.....	.....	15.38	.....	E. O. Painter Fertz. Co., Jacksonville, Fla.
Fertilizer .....	2342	.....	10.48	0.26	10.74	1.80	2.00	A. J. Strickland, Caryville, Fla.
Fertilizer No. 1.....	2343	5.67	7.29	0.83	8.12	4.73	6.51	T. Gaskins, Arcadia, Fla.
Fertilizer No. 2.....	2344	9.59	6.70	0.30	7.00	4.92	6.11	T. Gaskins, Arcadia, Fla.
Fertilizer No. 3.....	2345	8.12	7.14	0.71	7.85	2.98	4.36	T. Gaskins, Arcadia, Fla.
Fertilizer No. 4.....	2346	7.72	6.87	0.63	7.50	2.88	4.05	T. Gaskins, Arcadia, Fla.
Fish Scrap .....	2347	16.66	.....	.....	11.64	8.67	.....	T. R. Parker, Pensacola, Fla.
Fertilizer (Tankage) .....	2348	.....	.....	.....	13.25	2.60	.....	Howard & Kennedy, Terra Cela, Fla.
Fertilizer (C. M. Spec. E. T.)	2349	.....	5.44	2.31	7.75	3.13	11.13	Independent Fertz. Co., Jacksonville, Fla.
Fertilizer (C. M. Spec. Y. Y.)	2350	.....	6.50	2.42	8.98	3.83	7.41	Independent Fertz. Co., Jacksonville, Fla.
Kainit .....	2351	.....	.....	.....	.....	.....	12.31	Jno. H. Blake, Tampa, Fla.
Fertilizer .....	2352	7.36	2.35	3.28	5.63	7.20	4.64	C. S. Bixby, Ft. Pierce, Fla.
Fertilizer .....	2353	7.08	6.04	5.93	11.97	3.60	8.57	Lewis, Coon & Platt, Cathaleen, Fla.
Cotton Seed Meal.....	2354	.....	.....	.....	.....	7.65	.....	W. L. Thompson, Lakeland, Fla.
Ashes .....	2355	.....	.....	.....	.....	.....	3.43	The Gulf Fetz. Co., Tampa, Fla.

## SPECIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.	Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM SENT.
			Available.	Insoluble.	Total.			
Acid Phosphate.....	2356	.....	16.22	0.47	16.69	.....	.....	J. S. Howell, Chumuckla, Fla.
Fertilizer .....	2357	.....	2.04	6.05	8.69	4.41	7.86	W. J. Kimball, Ft. Pierce, Fla.
Fertilizer .....	2368	.....	1.30	1.30	2.60	6.45	5.17	C. Dunscombe, Stuart, Fla.
Fertilizer .....	2359	11.10	1.70	0.66	2.36	5.69	7.04	A. R. Mosler, Jensen, Fla.
Fertilizer No. 1.....	2360	9.11	5.31	0.69	6.00	5.81	3.35	Ocala Fertilz. Co., Ocala, Fla.
Fertilizer No. 2.....	2361	9.63	5.41	0.51	5.92	3.79	7.68	Ocala Fertilz. Co., Ocala, Fla.
Fertilizer No. 3.....	2362	7.63	5.80	1.09	6.89	3.91	9.29	Ocala Fertilz. Co., Ocala, Fla.
Steamed Bone Meal.....	2363	.....	.....	.....	26.07	1.75	.....	G. O. McPhall, Pensacola, Fla.
Fertilizer .....	2364	8.52	2.41	1.19	3.60	7.84	10.04	E. A. Brewer Hollandale, Fla.
Hard Wood Ashes.....	2365	.....	.....	.....	.....	.....	2.79	Chase & Co., Sanford, Fla.
Fertilizer .....	2366	.....	6.34	0.74	7.08	6.10	7.58	S. C. Gates, Manatee, Fla.
Steamed Bone Meal No. 1....	2367	.....	.....	.....	32.22	1.20	.....	C. S. VanHorten, Orlando, Fla.
Steamed Bone Meal No. 2....	2368	.....	.....	.....	24.38	3.64	.....	C. S. VanHorten, Orlando, Fla.
Steamed Bone Meal No. 3....	2369	.....	.....	.....	25.06	3.42	.....	C. S. VanHorten, Orlando, Fla.
Fertilizer .....	2370	4.39	5.53	4.39	9.92	4.85	13.22	H. A. Perry, Pomona, Fla.
Fertilizer .....	2371	8.09	7.60	0.97	8.57	4.85	7.79	James Campbell, Winter Park, Fla.
Fertilizer .....	2372	8.33	5.47	0.47	5.94	5.28	5.33	R. C. Hooks, Clermont, Fla.
Fertilizer No. 2.....	2373	7.30	4.23	0.53	4.76	5.48	5.36	R. C. Hooks, Clermont, Fla.
Blood and Bone.....	2374	.....	.....	.....	6.58	10.05	.....	A. R. Mosler, Jensen, Fla.
Fertilizer .....	2375	5.75	8.82	0.12	8.94	4.04	12.00	John M. Lee, Kissimmee, Fla.

Fertilizer (Pineapple Mlt.)	2376	.....	.....	.....	8.05	5.57	4.01	M. M. Gaston, Punta Gorda, Fla.
Fertilizer	2377	.....	6.16	0.62	6.78	2.62	8.28	R. S. Cohoon, Orlando, Fla.
Fertilizer	2378	.....	3.92	0.21	4.13	6.65	4.56	H. E. Spencer, West Palm Beach, Fla.
Blood and Bone No. 1	2379	.....	.....	.....	11.85	6.02	.....	W. R. Hardee, Jensen, Fla.
Blood and Bone No. 2	2380	.....	.....	.....	11.30	7.59	.....	W. R. Hardee, Jensen, Fla.
Blood and Bone No. 3	2381	.....	.....	.....	9.26	6.59	.....	W. R. Hardee, Jensen, Fla.
Blood and Bone	2382	.....	.....	.....	11.70	8.32	.....	A. R. Mosler, Jensen, Fla.
Fertilizer No. 1	2383	5.90	10.13	3.89	14.02	2.01	7.64	E. R. Watson, Arcadia, Fla.
Fertilizer No. 2	2384	2.29	7.18	4.74	11.92	0.55	14.54	E. R. Watson, Arcadia, Fla.
Fertilizer No. 3	2385	4.49	4.85	8.18	13.03	3.46	5.93	E. R. Watson, Arcadia, Fla.
Fertilizer	2386	7.74	4.80	7.64	12.44	4.40	10.37	C. M. Mallet, Orlando, Fla.
Fertilizer	2387	12.01	6.95	0.34	7.29	8.65	8.57	M. Cosner, Kissimmee, Fla.
Fertilizer No. 3	2388	6.30	1.74	0.85	2.59	7.49	6.23	Carroll Dunscombe, Stuart, Fla.

# DEPARTMENT OF AGRICULTURE—DIVISION OF CHEMISTRY.

## FERTILIZER SECTION.

R. E. ROSE, State Chemist.

OFFICIAL FERTILIZER ANALYSES, 1910. L. HEIMBURGER, Asst. Chemist.

Samples Taken by State Chemist Under Sections 1 and 2, Act Approved May 22, 1905.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Nitrate of Potash .....	1452	Guarant'd Analysis.....	.....	.....	.....	.....	15.00	43.00	E. O. Palinter Fertz. Co., Jacksonville, Fla.
		Official Analysis...	.....	.....	.....	.....	14.25	42.64	
Bean Fertilizer .....	1453	Guarant'd Analysis.....	10.00	5.00	1.00	.....	5.00	5.00	The Armour Fertz. Wks., Jacksonville, Fla.
		Official Analysis...	8.01	5.27	0.92	6.19	4.92	5.82	
Mapes' Fruit and Vine Manure .....	1454	Guarant'd Analysis.....	10.00	5.00	2.00	.....	2.00	10.00	Mapes' For. & Peruvian Guano Co., New York.
		Official Analysis...	8.63	5.32	3.72	9.04	2.79	11.44	
Mapes' Vegetable Manure.	1455	Guarant'd Analysis.....	12.00	6.00	2.00	.....	5.00	4.00	Mapes' For. & Peruvian Guano Co., New York.
		Official Analysis...	9.60	5.91	3.69	9.60	5.43	5.66	
H. O. Blood and Bone....	1456	Guarant'd Analysis.....	10.00	3.00	1.50	.....	10.00	.....	Independent Fertz. Co., Jacksonville, Fla.
		Official Analysis...	.....	2.52	1.37	3.89	10.59	.....	
H. O. Sulphate of Potash..	1457	Guarant'd Analysis.....	10.00	.....	.....	.....	.....	48.00	Independent Fertz. Co., Jacksonville, Fla.
		Official Analysis...	.....	.....	.....	.....	.....	50.88	

b-Bul.	Dried Blood .....	1458	Guarant'd Analysis	12.00	.....	.....	.....	15.00	.....	Independent Fertz. Co.,
			Official Analysis...	.....	.....	.....	.....	17.24	.....	Jacksonville, Fla.
	Hard Wood Ashes.....	1459	Guarant'd Analysis	15.00	.....	.....	.....	4.00	.....	Independent Fertz. Co.,
			Official Analysis...	.....	.....	.....	.....	2.25	.....	Jacksonville, Fla.
	H. O. Acid Phosphate....	1450	Guarant'd Analysis	10.00	16.00	0.50	.....	.....	.....	Independent Fertz. Co.,
			Official Analysis...	.....	18.79	0.02	18.81	.....	.....	Jacksonville, Fla.
	Prime Bright Cotton Seed	1451	Guarant'd Analysis	.....	.....	.....	.....	7.50	.....	Independent Fertz. Co.,
	Meal .....		Official Analysis...	.....	.....	.....	.....	7.52	.....	Jacksonville, Fla.
	H. O. Ky. Tobacco Stems..	1452	Guarant'd Analysis	10.00	.....	.....	.....	2.00	7.00	Independent Fertz. Co.,
			Official Analysis...	.....	.....	.....	.....	2.58	9.54	Jacksonville, Fla.
	Favorite Non-Ammoniated	1453	Guarant'd Analysis	10.00	10.00	1.00	.....	.....	11.00	Independent Fertz. Co.,
	Special .....		Official Analysis...	8.17	10.37	0.17	10.54	.....	10.97	Jacksonville, Fla.
	Simon Pure Tomato.....	1464	Guarant'd Analysis	8.00	4.00	3.00	.....	5.00	9.00	E. O. Painter Fertz. Co.,
			Official Analysis...	6.65	6.03	2.52	8.55	5.96	9.97	Jacksonville, Fla.
	Simon Pure Rose Special.	1455	Guarant'd Analysis	8.00	3.50	1.75	.....	4.50	5.25	E. O. Painter Fertz. Co.,
			Official Analysis...	8.26	4.41	1.50	5.91	5.30	7.60	Jacksonville, Fla.
	Simon Pure No. 1.....	1465	Guarant'd Analysis	8.00	6.00	1.00	.....	4.00	12.00	E. O. Painter Fertz. Co.,
			Official Analysis...	6.98	5.80	0.03	5.83	4.05	13.13	Jacksonville, Fla.
	Gem Special .....	1467	Guarant'd Analysis	5.00	5.00	3.00	.....	4.00	6.00	E. O. Painter Fertz. Co.,
			Official Analysis...	5.63	5.33	0.25	6.58	4.35	6.67	Jacksonville, Fla.

OFFICIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O)	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Oem Fruit and Vine.....	1468	Guarant'd Analysis Official Analysis...	8.00 6.21	6.00 6.67	1.00 1.05	..... 7.62	3.00 3.32	10.00 11.17	E. O. Painter Fertz. Co., Jacksonville, Fla.
Simon Pure No. 2.....	1469	Guarant'd Analysis Official Analysis...	8.00 5.73	6.00 6.79	2.00 2.06	..... 8.85	4.00 4.72	6.00 7.97	E. O. Painter Fertz. Co., Jacksonville, Fla.
Sulphate of Ammonia.....	1470	Guarant'd Analysis Official Analysis...	..... .....	..... .....	..... .....	..... .....	25.00 25.80	..... .....	E. O. Painter Fertz. Co., Jacksonville, Fla.
Lawn Special .....	1471	Guarant'd Analysis Official Analysis...	10.00 4.99	7.00 6.13	1.00 0.33	..... 6.46	6.50 8.02	5.00 8.10	E. O. Painter Fertz. Co., Jacksonville, Fla.
Seminole Tree Grower....	1472	Guarant'd Analysis Official Analysis...	8.00 8.79	6.00 6.45	..... 0.86	..... 7.31	4.00 4.04	8.00 8.69	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
W. & T.'s Special Fruit and Vine Manure .....	1473	Guarant'd Analysis Official Analysis...	10.00 9.01	6.00 7.18	1.00 0.11	..... 7.29	4.00 4.26	13.00 12.72	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Williams & Clark Fruit and Vine .....	1474	Guarant'd Analysis Official Analysis...	10.40 6.81	5.50 6.32	3.00 0.98	..... 7.30	2.25 2.31	10.00 9.81	Am. Agr. Chemical Co., Jacksonville, Fla.



Bradley Florida Vegetable.	1475	Guarant'd Analysis Official Analysis...	10.00 7.75	6.00 6.79	1.00 1.16	..... 7.95	4.00 4.26	5.00 5.70	Am. Agr. Chemical Co., Jacksonville, Fla.
Williams & Clark Florida Vegetable .....	1476	Guarant'd Analysis Official Analysis...	10.00 8.30	6.00 7.24	1.00 0.84	..... 8.08	4.00 4.15	5.00 4.38	Am. Agr. Chemical Co., Jacksonville, Fla.
Bradley Fruit and Vine..	1477	Guarant'd Analysis Official Analysis...	10.00 6.57	5.50 6.32	1.00 0.77	..... 7.09	2.25 2.44	10.00 10.70	Am. Agr. Chemical Co., Jacksonville, Fla.
Lazaretto Early Trucker..	1478	Guarant'd Analysis Official Analysis...	8.00 9.71	7.00 8.19	2.00 1.51	..... 9.70	5.00 4.82	5.00 5.43	Am. Agr. Chemical Co., Jacksonville, Fla.
Williams & Clark Nursery Stock .....	1479	Guarant'd Analysis Official Analysis...	10.00 6.73	8.00 8.65	1.00 1.02	..... 9.67	4.50 4.29	3.00 3.57	Am. Agr. Chemical Co., Jacksonville, Fla.
Williams & Clark Special Fruit and Vine.....	1480	Guarant'd Analysis Official Analysis...	10.00 10.11	5.50 7.05	3.00 1.66	..... 8.71	4.25 4.60	10.00 7.60	Am. Agr. Chemical Co., Jacksonville, Fla.
Bradley Orange Tree.....	1481	Guarant'd Analysis Official Analysis...	10.00 7.55	6.00 7.17	1.00 0.68	..... 7.85	3.50 3.70	5.00 4.71	Am. Agr. Chemical Co., Jacksonville, Fla.
Peruvian Orange Tree Grower .....	1482	Guarant'd Analysis Official Analysis...	8.00 9.10	6.00 6.65	2.00 2.22	..... 8.87	5.00 5.25	8.00 10.08	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Special Mixture No. 1....	1483	Guarant'd Analysis Official Analysis...	8.00 9.86	6.00 6.15	1.00 1.78	..... 7.93	5.00 5.31	5.00 5.66	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Ideal Vegetable Manure...	1485	Guarant'd Analysis Official Analysis...	8.00 9.77	6.00 6.29	1.00 0.95	..... 7.24	4.00 4.51	8.00 7.60	Wilson & Toomer Fertz. Co., Jacksonville, Fla.

OFFICIAL FERTILIZER ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Ideal Sugar Cane Fertilizer	1486	Guarant'd Analysis	10.00	7.00	.....	.....	3.00	4.00	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
		Official Analysis...	11.25	6.65	1.20	7.85	3.33	5.49	
Spec. Mlxt. for Cowpenned or Over-Am'oniated Trees	1487	Guarant'd Analysis	10.00	8.00	.....	.....	.....	13.00	Wilson & Toomer Fertz. Co., Jacksonville, Fla. 80
		Official Analysis...	5.82	8.50	1.93	10.43	.....	12.58	
Kalnlt .....	1488	Guarant'd Analysis	.....	.....	.....	.....	.....	12.00	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
		Official Analysis...	.....	.....	.....	.....	.....	15.03	
Complete Sweet Potato Fertilizer .....	1489	Guarant'd Analysis	10.00	8.00	1.00	.....	2.50	3.50	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
		Official Analysis...	13.22	8.33	1.36	9.69	2.08	4.56	
Armour's Fruit and Vine..	1490	Guarant'd Analysis	10.00	6.00	1.00	.....	2.50	11.00	The Armour Fertz.Wks., Jacksonville, Fla.
		Official Analysis...	6.15	6.30	0.28	6.67	3.30	11.04	
Armour's Blood, Bone and Potash .....	1491	Guarant'd Analysis	10.00	8.00	1.00	.....	5.00	7.00	The Armour Fertz.Wks., Jacksonville, Fla.
		Official Analysis...	8.48	7.65	2.35	10.00	5.10	7.68	
Armour's Vegetable .....	1492	Guarant'd Analysis	10.00	7.00	2.00	.....	4.00	6.00	The Armour Fertz.Wks., Jacksonville, Fla.
		Official Analysis...	9.23	6.93	1.17	8.10	3.58	6.63	

Special Mixture .....	1493	Guarant'd Analysis Official Analysis...	8.00 9.01	8.00 8.77	..... 0.21	..... 8.93	..... .....	15.00 13.36	The Armour Fertz. Wks., Jacksonville, Fla.
Armour's Practical Trucker	1494	Guarant'd Analysis Official Analysis...	10.00 8.07	6.00 5.80	2.00 0.92	..... 6.72	3.00 2.72	10.00 10.92	The Armour Fertz. Wks., Jacksonville, Fla.
Armour's Orange Frulter..	1495	Guarant'd Analysis Official Analysis...	10.00 6.33	8.00 7.95	1.00 0.52	..... 8.47	4.00 4.35	12.00 11.89	The Armour Fertz. Wks., Jacksonville, Fla.
Goulding's Bone Compound	1496	Guarant'd Analysis Official Analysis...	16.00 10.22	8.00 8.73	2.00 1.45	..... 10.18	2.00 3.08	2.00 2.00	The Goulding Fertz. Co., Pensacola, Fla.
Goulding's 16% Acid Phos- phate .....	1497	Guarant'd Analysis Official Analysis...	16.00 .....	16.00 16.89	2.00 0.36	..... 17.25	..... .....	..... .....	The Goulding Fertz. Co., Pensacola, Fla.
Cuke Special .....	1498	Guarant'd Analysis Official Analysis...	8.00 9.64	5.00 6.55	1.00 0.04	..... 5.59	5.00 4.40	8.00 10.72	The Gulf Fertz. Co., Tampa, Fla.
Orange Frulter .....	1499	Guarant'd Analysis Official Analysis...	10.00 5.87	6.00 7.05	1.00 0.25	7.00 7.30	4.00 4.64	11.00 11.07	The Gulf Fertz. Co., Tampa, Fla.
Orange Tree Grower.....	1500	Guarant'd Analysis Official Analysis...	8.00 7.67	6.00 6.61	1.00 0.83	7.00 7.43	5.00 6.40	6.00 7.37	The Gulf Fertz. Co., Tampa, Fla.
Cane and Corn Special....	1501	Guarant'd Analysis Official Analysis...	8.00 7.83	6.00 7.06	1.00 1.30	7.00 8.36	3.00 3.68	5.00 5.88	The Gulf Fertilizer Co., Tampa, Fla.
Tomato Special .....	1602	Guarant'd Analysis Official Analysis...	8.00 10.23	5.00 6.62	1.00 0.88	..... 7.40	4.00 4.63	8.00 9.77	The Gulf Fertilizer Co., Tampa, Fla.
Special Fruit and Vine....	1503	Guarant'd Analysis Official Analysis...	8.00 7.07	6.00 6.70	1.00 0.25	7.00 6.95	3.00 8.45	13.00 14.81	The Gulf Fertilizer Co., Tampa, Fla.

OFFICIAL FERTILIZER ANALYSES, 1910.—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Armour's Fruit and Vine..	1504	Guarant'd Analysis Official Analysis...	10.00 6.60	6.00 6.25	1.00 1.28	..... 7.53	2.50 2.68	11.00 11.07	The Armour Fertz Wks., Jacksonville, Fla.
Armour's Blood, Bone and Potash .....	1505	Guarant'd Analysis Official Analysis...	10.60 7.43	8.00 7.95	1.00 2.26	..... 10.21	5.00 5.05	7.00 7.31	The Armour Fertz. Wks., Jacksonville, Fla. 02
Mapes Orange Tree Manure .....	1506	Guarant'd Analysis Official Analysis...	12.00 12.94	6.00 9.28	2.00 1.83	..... 11.11	4.00 4.32	3.00 3.76	The Mapes Formula and Peruvian Guano Co., New York, N. Y.
Armour's Watermelon Special .....	1507	Guarant'd Analysis Official Analysis...	10.00 7.08	5.00 5.36	1.00 1.41	..... 6.77	3.00 3.30	8.00 8.74	The Armour Fertz. Wks., Jacksonville, Fla.
Lettuce Special .....	1508	Guarant'd Analysis Official Analysis...	10.00 13.60	3.00 3.24	2.00 1.05	..... 4.29	7.00 6.19	4.00 4.29	The Armour Fertz. Wks., Jacksonville, Fla.
H. G. Sulfate of Potash....	1509	Guarant'd Analysis Official Analysis...	6.00 .....	..... .....	..... .....	..... .....	..... .....	50.00 50.40	The Armour Fertz. Wks., Jacksonville, Fla.
Tampa Fruitier .....	1510	Guarant'd Analysis Official Analysis...	8.00 6.04	6.00 6.56	1.00 2.59	..... 9.14	4.00 4.18	12.00 13.79	The Tampa Fertilizer Co., Tampa, Fla.

Irish Potato .....	1511	Guarant'd Analysis Official Analysis...	8.00 5.81	6.00 10.97	2.00 0.53	..... 11.50	4.00 4.48	8.00 9.21	The Tampa Fertilizer Co., Tampa, Fla.
Germofert Vegetable.....	1512	Guarant'd Analysis Official Analysis...	5.00 6.42	5.00 3.28	7.00 9.34	..... 12.62	4.00 4.08	6.00 5.89	The Tampa Fertilizer Co., Tampa, Fla.
One Third Mixture.....	1513	Guarant'd Analysis Official Analysis...	8.00 7.45	6.50 6.62	1.00 0.57	..... 7.19	2.50 3.27	4.50 5.43	The Tampa Fertilizer Co., Tampa, Fla.
Cane Special .....	1514	Guarant'd Analysis Official Analysis...	8.00 5.96	6.00 5.89	2.00 6.26	..... 12.15	5.00 4.78	4.00 6.13	The Tampa Fertilizer Co., Tampa, Fla.
Germofert Orange Tree Grower .....	1515	Guarant'd Analysis Official Analysis...	5.00 4.57	3.00 3.22	9.00 10.35	..... 13.57	4.00 4.50	5.00 6.63	The Tampa Fertilizer Co., Tampa, Fla.
Corn Special Fertilizer...	1516	Guarant'd Analysis Official Analysis...	10.00 8.46	8.00 7.75	1.00 3.49	..... 11.24	2.00 1.97	3.00 3.32	The Tampa Fertilizer Co., Tampa, Fla.
Germofert Fruit and Vine..	1517	Guarant'd Analysis Official Analysis...	5.00 3.78	3.00 2.78	9.00 9.32	12.00 12.10	2.00 2.98	12.00 13.61	The Tampa Fertilizer Co., Tampa, Fla.
Germofert Corn Special..	1518	Guarant'd Analysis Official Analysis...	5.00 3.89	3.00 3.67	9.00 12.71	12.00 16.38	2.00 2.09	3.00 3.76	The Tampa Fertilizer Co., Tampa, Fla.
Acid Phosphate .....	1519	Guarant'd Analysis Official Analysis...	..... .....	16.00 17.63	..... 0.38	..... 18.01	..... .....	..... .....	The Tampa Fertilizer Co., Tampa, Fla.
German Kalnit .....	1520	Guarant'd Analysis Official Analysis...	..... .....	..... .....	..... .....	..... .....	..... .....	12.00 12.47	Willson & Toomer Fertz. Co., Jacksonville, Fla.
Ideal Tomato Special.....	1521	Guarant'd Analysis Official Analysis...	8.00 9.41	6.00 5.92	..... 2.50	..... 8.48	5.00 5.12	5.00 6.01	Willson & Toomer Fertz. Co., Jacksonville, Fla.

OFFICIAL FERTILIZER ANALYSES, 1910.—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Spec. Mix. for Cowpen'd or over-Ammoniated Trees..	1522	Guarant'd Analysis Official Analysis...	10.00 3.79	8.00 6.96	..... 3.30	..... 10.26	..... .....	13.00 13.88	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Ideal Lettuce Fertilizer...	1523	Guarant'd Analysis Official Analysis...	10.00 8.17	6.00 6.60	..... 2.28	..... 8.88	6.00 5.80	6.00 5.86	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
No. 1 Peruvian & Fish Gu- ano Mixture .....	1524	Guarant'd Analysis Official Analysis...	12.00 5.64	5.00 5.75	1.00 1.33	..... 7.08	4.00 4.59	5.00 4.05	Fla. Fertz. Co., Branch, Gainesville, Fla.
Lettuce and Cuke Special.	1525	Guarant'd Analysis Official Analysis...	12.00 9.77	5.00 6.08	1.00 1.97	..... 8.05	6.50 5.13	4.00 3.47	Florida Fertilizer Co., Gainesville, Fla.
V. C. Tip Top Tomato Trucker .....	1526	Guarant'd Analysis Official Analysis...	8.00 6.70	7.00 7.20	1.00 1.60	..... 8.80	4.00 3.49	5.00 6.81	Florida Fertilizer Co., Gainesville, Fla.
Fish and Potash .....	1527	Guarant'd Analysis Official Analysis...	12.00 10.46	2.50 2.15	2.50 2.70	..... 4.85	6.50 5.60	5.00 5.80	Florida Fertilizer Co., Gainesville, Fla.
No. 2 Orange Tree Mixture	1528	Guarant'd Analysis Official Analysis...	12.00 5.43	6.00 7.26	2.00 1.72	..... 8.98	3.00 3.33	5.00 5.35	Florida Fertilizer Co., Gainesville, Fla.

Corn Special .....	1529	Quarant'd Analysis	10.00	7.00	.....	.....	2.50	4.00	Ocala Fertilizer Co.,
		Official Analysis...	11.59	6.62	1.03	7.65	2.39	4.04	Ocala, Fla.
"Superior Watermelon & Cantaloupe Special" .....	1530	Quarant'd Analysis	10.00	8.00	.....	.....	4.50	8.00	Ocala Fertilizer Co.,
		Official Analysis...	11.94	9.21	0.60	9.71	4.12	7.77	Ocala, Fla.
Tomato Fertilizer .....	1531	Quarant'd Analysis	10.00	6.00	.....	.....	4.00	9.00	Ocala Fertilizer Co.,
		Official Analysis...	10.58	5.17	1.16	6.33	3.94	9.13	Ocala, Fla.
Bean Fertilizer .....	1532	Quarant'd Analysis	10.00	6.00	.....	.....	3.00	6.00	Ocala Fertilizer Co.,
		Official Analysis...	10.69	5.44	0.69	6.03	2.98	6.94	Ocala, Fla.
Superior Fertilizer for General Trucking .....	1533	Quarant'd Analysis	10.00	6.00	1.00	.....	4.00	8.00	Ocala Fertilizer Co.,
		Official Analysis...	11.78	4.21	3.46	7.67	3.97	7.15	Ocala, Fla.
Special Lettuce .....	1534	Quarant'd Analysis	.....	5.00	.....	.....	7.00	4.00	Ocala Fertilizer Co.,
		Official Analysis...	10.26	5.40	0.20	5.60	4.93	5.00	Ocala, Fla.
Acid Phosphate .....	1535	Quarant'd Analysis	.....	16.00	.....	.....	.....	.....	Ocala Fertilizer Co.,
		Official Analysis...	.....	18.17	0.40	18.57	.....	.....	Ocala, Fla.
Standard Corn Special...	1536	Quarant'd Analysis	.....	6.00	1.00	7.00	3.00	5.00	Standard Fertilizer Co.,
		Official Analysis...	14.13	5.28	0.91	6.19	2.35	4.34	Gainesville, Fla.
Standard Vegetable No. 1...	1537	Quarant'd Analysis	8.00	5.00	1.00	6.00	4.50	6.00	Standard Fertilizer Co.,
		Official Analysis...	14.81	4.96	0.86	5.82	3.35	7.70	Gainesville, Fla.
Standard Fish and Potash.	1538	Quarant'd Analysis	11.00	4.00	1.00	5.00	6.00	6.00	Standard Fertilizer Co.,
		Official Analysis...	14.89	2.47	1.08	3.55	4.54	8.10	Gainesville, Fla.
Special Mixture for Cotton	1539	Quarant'd Analysis	.....	0.00	.....	.....	2.00	3.00	Standard Fertilizer Co.,
		Official Analysis...	9.42	5.68	1.20	6.88	2.69	3.97	Gainesville, Fla.

OFFICIAL FERTILIZER ANALYSES, 1910.—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Cotton Seed Meal.....	1540	Guarant'd Analysis	.....	.....	.....	.....	7.50	.....	Florida Cotton Oil Co., Jacksonville, Fla.
		Official Analysis...	.....	.....	.....	.....	6.57	.....	
Cotton Seed Meal.....	1541	Guarant'd Analysis	.....	.....	.....	.....	4.75	.....	Florida Cotton Oil Co., Jacksonville, Fla.
		Official Analysis...	.....	.....	.....	.....	4.23	.....	
Prime Cotton Seed Meal..	1542	Guarant'd Analysis	.....	.....	.....	.....	7.50	.....	Ala. Cotton Oil Co., Montgomery, Ala.
		Official Analysis...	.....	.....	.....	.....	6.67	.....	
Sea Gull Soluble Guano..	1543	Guarant'd Analysis	10.00	8.00	2.00	.....	2.00	2.00	Va.-Car. Chemical Co., Montgomery, Ala.
		Official Analysis...	12.01	9.16	1.25	10.41	1.83	2.04	
Jumbo Peruvian Guano	1544	Guarant'd Analysis	10.00	8.00	2.00	.....	3.00	3.00	Va.-Car. Chemical Co., Montgomery, Ala.
Crop Grower .....		Official Analysis...	12.83	6.53	5.45	11.98	2.49	3.39	
Formula 44 .....	1545	Guarant'd Analysis	8.00	7.00	1.00	.....	3.10	3.50	Va.-Car. Chemical Co., Savannah, Ga.
		Official Analysis...	6.94	7.33	5.24	12.57	3.44	2.73	
Phospho-Alkali with Potas-	1546	Guarant'd Analysis	10.00	7.00	1.00	.....	2.50	10.00	Va.-Car. Chemical Co., Savannah, Ga.
slum Nitrates .....		Official Analysis...	7.76	8.77	1.70	10.47	3.19	8.40	



Goulding's Meal Mixture..	1547	Guarant'd Analysis Official Analysis...	10.00 12.06	10.00 10.30	2.00 0.49	..... 10.79	1.00 1.01	1.00 1.34	The Goulding Fertz Co., Pensacola, Fla.
Goulding's 16% Acid Phos.	1548	Guarant'd Analysis Official Analysis...	16.00 .....	16.00 17.67	2.00 0.71	..... 18.38	..... .....	..... .....	The Goulding Fertz. Co., Pensacola, Fla.
Goulding's Bone Compound	1549	Guarant'd Analysis Official Analysis...	16.00 10.78	8.00 8.96	2.00 1.34	..... 10.80	2.00 2.17	2.00 2.33	The Goulding Fertz. Co., Pensacola, Fla.
Goulding's H. G. English Guano .....	1550	Guarant'd Analysis Official Analysis...	16.00 10.81	10.00 10.39	2.00 1.21	..... 11.60	2.00 2.82	2.00 1.74	The Goulding Fertz. Co., Pensacola, Fla.
Favorite Blood, Bone & Pot- ash for Vegetables ....	1551	Guarant'd Analysis Official Analysis...	10.00 7.31	8.00 6.91	1.00 1.77	..... 8.68	5.00 3.73	7.00 8.47	Independent Fertz. Co., Jacksonville, Fla.
Sanders' Bean Fertilizer..	1552	Guarant'd Analysis Official Analysis...	10.00 9.36	6.00 7.61	1.00 0.64	..... 8.25	3.00 2.97	6.00 6.34	O.W. Sanders Fertz. Co., Jacksonville, Fla.
Sanders' Corn Fertilizer..	1553	Guarant'd Analysis Official Analysis...	10.00 7.85	5.00 4.59	1.00 3.30	..... 7.89	3.00 2.89	2.00 3.53	G.W. Sanders Fertz. Co., Jacksonville, Fla.
Kainlt .....	1554	Guarant'd Analysis Official Analysis...	..... .....	..... .....	..... .....	..... .....	..... .....	12.00 11.73	G.W. Sanders Fertz. Co., Jacksonville, Fla.
Nitrate of Soda.....	1555	Guarant'd Analysis Official Analysis...	..... .....	..... .....	..... .....	..... .....	17.00 18.13	..... .....	O.W. Sanders Fertz. Co., Jacksonville, Fla.
Armour's Corn Special....	1556	Guarant'd Analysis Official Analysis...	10.00 9.48	8.00 6.22	1.00 1.40	..... 7.62	3.00 3.20	6.00 5.66	The Armour Fertz Wks., Jacksonville, Fla.
Special Mixture (for To- bacco) .....	1557	Guarant'd Analysis Official Analysis...	10.00 11.03	7.50 10.90	7.50 6.55	..... 17.45	2.00 2.11	18.00 16.38	The Armour Fertz. Wks., Jacksonville, Fla.

OFFICIAL FERTILIZER ANALYSES, 1910.—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Standard Cotton Fertilizer.	1558	Guarant'd Analysis	10.00	8.00	2.00	.....	2.00	2.00	The Southern Cotton Oil Co., Pensacola, Fla.
		Official Analysis...	13.63	8.45	1.43	9.88	1.79	2.71	
Cotton Seed Meal.....	1559	Guarant'd Analysis	.....	.....	.....	2.50	7.50	1.50	Florida Cotton Oil Co., Tallahassee, Fla.
		Official Analysis...	.....	.....	.....	.....	7.98	.....	
Farmer's Fish Guano.....	1560	Guarant'd Analysis	10.00	10.00	2.00	.....	2.00	2.00	Farmers' Fertz. Co., Montgomery, Ala.
		Official Analysis...	13.51	11.41	2.02	13.43	2.05	2.35	
Charles Ellis' Cumberland Fertilizer .....	1561	Guarant'd Analysis	14.00	8.00	1.00	.....	2.00	2.00	Mutual Fertilizer, Savannah, Ga.
		Official Analysis...	9.66	8.28	1.17	9.45	2.30	2.33	
No. 1 Genuine Peruvian Guano .....	1562	Guarant'd Analysis	.....	9.00	.....	.....	5.93	2.25	Peruvian Guano Corporation, Charleston, S.C.
		Official Analysis...	14.14	7.12	8.25	15.37	5.36	2.56	
Genuine Peruvian Guano..	1563	Guarant'd Analysis	.....	8.00	.....	.....	3.98	2.00	Peruvian Guano Corporation, Charleston, S.C.
		Official Analysis...	7.76	5.68	7.07	12.75	3.92	2.00	
Genuine Peruvian Guano..	1564	Guarant'd Analysis	.....	9.00	.....	.....	2.98	2.00	Peruvian Guano Corporation, Charleston, S.C.
		Official Analysis...	12.35	6.96	8.87	15.83	3.18	2.11	

Second Class Cotton Seed Meal .....	1565	Guarant'd Analysis	.....	.....	.....	2.25	7.00	1.50	Cuthbert Oil Co., Cuthbert, Ga.
		Official Analysis...	.....	.....	.....	.....	7.05	.....	
No. 3 .....	1566	Guarant'd Analysis	8.00	6.00	2.00	.....	4.00	10.00	Southern Fertilizer Co., Orlando, Fla.
		Official Analysis...	9.48	5.36	0.73	6.09	4.03	9.95	
Extra Fruit and Vine.....	1567	Guarant'd Analysis	8.00	6.00	1.00	.....	2.00	14.00	Southern Fertilizer Co., Orlando, Fla.
		Official Analysis...	8.35	6.06	0.61	6.67	2.10	13.84	
No. 4 .....	1568	Guarant'd Analysis	8.00	6.00	2.00	.....	3.00	10.00	Southern Fertilizer Co., Orlando, Fla.
		Official Analysis...	10.93	6.03	0.81	6.89	3.09	9.03	
No. 1 .....	1569	Guarant'd Analysis	8.00	5.00	2.00	.....	5.00	4.00	Southern Fertilizer Co., Orlando, Fla.
		Official Analysis...	6.53	5.85	0.74	6.59	5.13	4.57	
Vegetable Fertilizer .....	1570	Guarant'd Analysis	8.00	6.00	2.00	.....	5.00	6.00	Southern Fertilizer Co., Orlando, Fla.
		Official Analysis...	11.04	5.92	0.76	6.68	4.82	6.11	
Special for Corn.....	1571	Guarant'd Analysis	8.00	7.00	.....	.....	3.00	4.50	Southern Fertilizer Co., Orlando, Fla.
		Official Analysis...	10.25	7.35	0.70	8.05	2.83	4.65	
Hillman's Special for Vegetables .....	1572	Guarant'd Analysis	8.00	.....	.....	8.00	5.00	6.00	Southern Fertilizer Co., Orlando, Fla.
		Official Analysis...	6.93	6.07	3.07	9.14	5.25	6.51	
Carry's Special for Fruit..	1573	Guarant'd Analysis	8.00	6.00	1.00	.....	4.00	12.00	Southern Fertilizer Co., Orlando, Fla.
		Official Analysis...	7.07	6.80	0.48	7.28	3.72	11.09	
Kalnit .....	1574	Guarant'd Analysis	.....	.....	.....	.....	.....	12.00	E. O. Painter Fertil. Co., Jacksonville, Fla.
		Official Analysis...	.....	.....	.....	.....	.....	13.51	
Gem Vegetable .....	1575	Guarant'd Analysis	5.00	5.00	3.00	.....	4.00	6.00	E. O. Painter Fertil. Co., Jacksonville, Fla.
		Official Analysis...	8.35	9.49	0.10	9.59	4.57	7.62	

OFFICIAL FERTILIZER ANALYSES, 1910.—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
H. G. Dried Blood.....	1576	Guarant'd Analysis Official Analysis...	..... .....	..... .....	..... .....	..... .....	17.00 15.89	..... .....	E. O. Painter Fertz. Co., Jacksonville, Fla.
Simon Pure No. 2.....	1577	Guarant'd Analysis Official Analysis...	8.00 8.52	6.00 7.15	2.00 0.82	..... 7.97	4.00 4.82	6.00 6.98	E. O. Painter Fertz. Co., Jacksonville, Fla.
H. G. Sulfate of Potssh...	1578	Guarant'd Analysis Official Analysis...	8.00 .....	..... .....	..... .....	..... .....	..... .....	49.00 52.72	E. O. Painter Fertz. Co., Jacksonville, Fla.
Medium Grade Cotton Seed Meal .....	1579	Guarant'd Analysis Official Analysis...	..... .....	..... .....	..... .....	2.00 .....	7.50 7.52	1.00 .....	Planters' Oil Co., Al- bany, Ga.
Ideal Fruit & Vine Manure	1580	Guarant'd Analysis Official Analysis...	10.00 14.66	6.00 6.20	..... 0.45	..... 6.65	3.00 3.10	10.00 9.34	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Pernvian Guano Tree Grower .....	1581	Guarant'd Analysis Official Analysis...	8.00 9.89	6.00 6.44	2.00 3.31	..... 9.75	5.00 4.88	8.00 8.28	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Ideal Vegetable Manure...	1582	Guarant'd Analysis Official Analysis...	8.00 11.81	6.00 5.55	1.00 1.72	..... 7.27	4.00 3.75	8.00 9.19	Wilson & Toomer Fertz. Co., Jacksonville, Fla.

W. & T's Special Mixture No. 1 .....	1583	Guarant'd Analysis Official Analysis...	8.00 13.30	0.09 6.14	1.00 0.61	..... 6.75	5.00 5.25	5.00 5.25	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
L. G. Sulfate of Potash....	1584	Guarant'd Analysis Official Analysis...	..... .....	..... .....	..... .....	..... .....	..... .....	26.00 27.24	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Original Ideal Fertilizer...	1585	Guarant'd Analysis Official Analysis...	8.00 7.98	5.00 3.38	1.00 0.00	..... 3.38	4.00 5.30	6.00 6.44	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
H. G. V. C. Tip Top Tomato Trucker .....	1586	Guarant'd Analysis Official Analysis...	8.00 3.20	7.00 7.11	1.00 2.47	..... 9.58	4.00 4.77	5.00 6.22	Va.-Car. Chemical Co., Savannah, Ga.
H. G. V. C. Old Dominion Potato Manure .....	1587	Guarant'd Analysis Official Analysis...	8.00 8.23	7.00 8.21	1.00 0.40	..... 8.67	5.00 4.96	8.00 6.11	Va.-Car. Chemical Co., Savannah, Ga.
H. O. V. C. Fruit and Vine.	1588	Guarant'd Analysis Official Analysis...	8.00 8.34	6.00 8.99	1.00 0.21	..... 9.20	2.50 1.84	10.00 9.15	Va.-Car. Chemical Co., Savannah, Ga.
H. O. V. C. Champion Citrus Compound .....	1589	Guarant'd Analysis Official Analysis...	10.00 2.82	6.00 7.31	1.00 0.54	..... 7.85	3.00 3.43	14.00 13.88	Va.-Car. Chemical Co., Savannah, Ga.
Orange Fruiter .....	1590	Guarant'd Analysis Official Analysis...	10.00 4.82	8.00 8.58	1.00 0.18	..... 8.76	4.00 4.15	12.00 11.71	The Armour Fertz. Wks., Jacksonville, Fla.
Armour's Practical Trucker	1591	Guarant'd Analysis Official Analysis...	10.00 9.49	6.00 7.28	2.00 0.95	..... 8.23	3.00 2.69	10.00 8.24	The Armour Fertz. Wks., Jacksonville, Fla.
Armour's Original Mixture No. 1 .....	1592	Guarant'd Analysis Official Analysis...	10.00 6.95	5.00 5.97	1.00 0.98	..... 6.95	5.00 4.94	5.00 5.64	The Armour Fertz. Wks., Jacksonville, Fla.
Williams & Clark Orange Tree .....	1593	Guarant'd Analysis Official Analysis...	10.00 6.60	6.00 6.81	1.00 1.19	..... 8.00	3.50 4.04	5.00 5.80	Am. Agr. Chemical Co., Jacksonville, Fla.

OFFICIAL FERTILIZER ANALYSES, 1910.—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Cotton Seed Meal.....	1594	Guarant'd Analysis Official Analysis...	6.50 .....	.....	.....	2.00	7.50 7.84	1.00 .....	A. A. Smith, Atlanta, Ga.
Kainit .....	1595	Guarant'd Analysis Official Analysis...	..... .....	.....	.....	.....	.....	12.00 13.17	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
The Ideal Fertilizer.....	1596	Guarant'd Analysis Official Analysis...	8.00 7.04	5.00 5.56	1.00 0.90	..... 6.46	4.00 4.16	6.00 5.48	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
W. & T.'s Special Mixture No. 1 .....	1597	Guarant'd Analysis Official Analysis...	8.00 7.72	6.00 6.21	1.00 1.05	..... 7.26	5.00 5.59	5.00 5.99	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Canada Unleached Hard Wood Ashes .....	1598	Guarant'd Analysis Official Analysis...	12.00 .....	.....	.....	1.00	..... 2.94	4.00	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Nitrate of Soda.....	1599	Guarant'd Analysis Official Analysis...	3.00 .....	.....	.....	.....	17.00 18.17	.....	Wilson & Toomer Fertz. Co., Jacksonville, Fla.
Ideal Fruit & Vine Manure	1600	Guarant'd Analysis Official Analysis...	10.00 6.23	6.00 6.73	..... 0.14	..... 6.87	3.00 3.62	10.00 10.20	Wilson & Toomer Fertz. Co., Jacksonville, Fla.

Ideal Vegetable Manure...	1601	Guarant'd Analysis Official Analysis...	8.00 10.94	6.00 6.51	1.00 0.91	..... 7.42	4.00 3.98	8.00 9.00	Willson & Toomer Fertz. Co., Jacksonville, Fla.
Complete Sweet Potato Fer- tilizer .....	1602	Guarant'd Analysis Official Analysis...	10.00 12.28	8.00 9.43	1.00 1.24	..... 10.67	2.50 2.64	3.50 4.30	Willson & Toomer Fertz. Co., Jacksonville, Fla.
Mapes Fruit & Vine Manure	1603	Guarant'd Analysis Official Analysis...	10.00 11.80	5.00 5.63	2.00 2.12	..... 7.75	2.00 2.60	10.00 11.24	The Mapes Formula & Peruvian Guano Co., New York, N. Y.
Mapes Vegetable Manure..	1604	Guarant'd Analysis Official Analysis...	12.00 11.71	6.00 6.29	2.00 2.69	..... 8.98	5.00 4.97	4.00 6.01	The Mapes Formula & Peruvian Guano Co., New York, N. Y.
Mapes Orange Tree Manure	1605	Guarant'd Analysis Official Analysis...	12.00 11.89	6.00 7.43	2.00 2.72	..... 10.15	4.00 4.14	3.00 4.27	The Mapes Formula & Peruvian Guano Co., New York, N. Y.
Orange Tree Grower.....	1606	Guarant'd Analysis Official Analysis...	8.00 3.78	6.00 7.04	2.00 5.38	..... 12.42	4.00 4.34	5.00 6.50	Tampa Fertilizer Co., Tampa, Fla.
Vegetable Special .....	1607	Guarant'd Analysis Official Analysis...	10.00 11.19	6.00 7.26	1.00 0.99	7.00 8.25	5.00 4.55	5.00 5.97	The Gulf Fertilizer Co., Tampa, Fla.
Cuke Special .....	1608	Guarant'd Analysis Official Analysis...	8.00 9.58	5.00 6.18	1.00 0.52	..... 6.70	5.00 4.90	8.00 9.11	The Gulf Fertilizer Co., Tampa, Fla.
Celery Special .....	1609	Guarant'd Analysis Official Analysis...	10.00 7.43	5.00 5.63	1.00 0.72	6.00 6.35	6.00 6.26	7.00 8.16	The Gulf Fertilizer Co., Tampa, Fla.
Orange Producer .....	1610	Guarant'd Analysis Official Analysis...	8.00 6.58	7.00 6.63	1.00 0.48	..... 7.11	4.50 4.49	15.00 14.54	The Gulf Fertilizer Co., Tampa, Fla.

OFFICIAL FERTILIZER ANALYSES, 1910.—Continued.

NAME, OR BRAND.	Laboratory Number.		Moisture.	Phosphoric Acid.			Ammonia.	Potash (K <sub>2</sub> O).	BY WHOM AND WHERE MANUFACTURED.
				Available.	Insoluble.	Total.			
Fruit and Vine.....	1611	Guarant'd Analysis	10.00	6.00	1.00	7.00	3.00	10.00	The Gulf Fertilizer Co., Tampa, Fla.
		Official Analysis...	4.29	3.07	3.31	6.88	3.28	9.83	



# DEPARTMENT OF AGRICULTURE—DIVISION OF CHEMISTRY.

## FEEDING STUFF SECTION.

H. E. ROSE, State Chemist.

SPECIAL FEEDING STUFF ANALYSES, 1910.

E. PECK GREENE, Asst. Chemist.

Samples Taken by Purchaser Under Section 9, Act Approved May 24, 1905.

NAME, OR BRAND.	Laboratory Number.	Fibre.	Protein.	Starch and Sugar.	Fat.	Ash.	BY WHOM SENT.
Barley Mixed Oats.....	120	9.45	11.23	63.13	3.05	2.97	Ganahl & Saussy, Jacksonville, Fla.
Barley Mixed Oats.....	121	9.34	11.45	63.14	3.01	3.34	Bonacker Bros., Pensacola, Fla.
Rice Bran .....	122	13.82	12.15	42.64	11.82	9.50	E. Barkdale, Tampa, Fla.
Kornfalfa Feed .....	123	12.13	11.76	56.92	2.85	3.37	Peninsular Naval Stores Co., Tampa, Fla.
Mixed Grain (Oats), No. 6783.....	124	8.52	11.30	57.78	3.50	3.25	Lewis Bear Co., Pensacola, Fla.
Mixed Grain (Oats), No. 13670.....	125	7.87	11.50	60.46	3.57	3.30	Lewis Bear Co., Pensacola, Fla.
Ground Corn Ear.....	126	11.38	7.72	65.95	2.77	1.50	R. F. Howard, Tallahassee, Fla.
Feed No. 1.....	127	11.55	10.84	62.42	3.62	1.85	R. F. Howard, Tallahassee, Fla.
Feed No. 2.....	128	11.10	12.37	59.84	4.80	2.22	R. F. Howard, Tallahassee, Fla.
Corn Shucks .....	129	32.80	2.28	52.61	0.57	1.67	R. F. Howard, Tallahassee, Fla.
Mixed Oats .....	130	9.77	12.32	58.72	4.37	3.15	Lewis Bear Co., Pensacola, Fla.
Bran .....	131	9.70	15.80	54.61	3.45	6.67	I. Wolf, Pensacola, Fla.
Velvet Beans .....	132	7.38	19.04	55.07	5.23	3.39	C. A. Williams, Alachua, Fla.
Perfection Feed .....	133	10.05	12.64	61.58	3.64	2.37	R. F. Howard, Tallahassee, Fla.
Corn "3-D." Grain .....	134	10.95	31.59	39.14	8.68	1.85	John C. Evans, Gainesville, Fla.
Schumacher Special Horse Feed.....	135	8.60	9.65	64.70	3.27	2.75	William F. Jack, Tampa, Fla.
Economy Feed .....	136	10.83	10.31	62.24	3.29	1.97	R. F. Howard, Tallahassee, Fla.
Wheat Middlings .....	137	7.14	18.21	51.00	5.95	5.30	C. E. Peas, Chipley, Fla.

SPECIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME OR BRAND.	Laboratory Number.	Fibre.	Protein.	Starch and Sugar.	Fat.	Ash.	BY WHOM SENT.
Oats .....	133	11.78	10.71	57.16	3.57	3.03	A. S. Carr, Wilma, Fla.
Beggarweed Hay .....	139	24.07	21.63	35.08	4.04	3.94	P. H. Fellows, DeFuniak Springs, Fla.
Giant Millet .....	140	2.28	11.65	67.59	5.15	1.32	W. E. Jaques, Jacksonville, Fla.
Pure Wheat Bran .....	141	9.76	14.48	63.56	3.53	6.84	N. C. Bryan, Kissimmee, Fla.
Corn and Oat Feed.....	142	7.22	9.76	64.30	5.55	2.65	The Lewis Bear Co., Pensacola, Fla.
Wheat Bran .....	143	10.37	13.38	57.28	2.31	6.58	W. I. Vason, Tallahassee, Fla.
Feed No. 1.....	144	6.28	12.11	64.85	3.47	3.78	Walton Land and Timber Co., DeFuniak Springs, Fla.
Feed No. 2.....	145	5.13	9.74	67.60	3.34	3.99	Walton Land and Timber Co., DeFuniak Springs, Fla.
Feed No. 1.....	146	24.20	11.35	41.72	2.07	5.48	R. F. Howard, Tallahassee, Fla.
Feed No. 2.....	147	27.07	6.10	50.06	2.07	4.26	R. F. Howard, Tallahassee, Fla.
Malden Cane Hay.....	148	32.66	8.49	43.15	1.25	5.18	G. C. Allen, Beachtown, Ga.
Kndzu Hay.....	149	37.81	19.82	27.21	1.36	3.85	C. E. Please, Chipley, Fla.

# DEPARTMENT OF AGRICULTURE—DIVISION OF CHEMISTRY.

## FEEDING STUFF SECTION.

R. E. Rosz, State Chemist.      OFFICIAL FEEDING STUFF ANALYSES, 1910.      E. PECK GREENE, Asst. Chemist.  
 Samples Taken by State Chemist and State Inspector Under Sections 1, 2 and 13, Act Approved May 24, 1905.

NAME, OR BRAND.	Laboratory Number.		Fibre.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURER.
Fancy Shorts .....	901	Guarant'd Analysis Official Analysis...	7.35 7.48	16.03 17.59	59.52 56.46	4.32 4.24	..... 4.21	Phoenix Flour Mill, Evansville, Ind.
Pine Leaf Middlings.....	902	Guarant'd Analysis Official Analysis...	6.10 6.03	15.75 17.85	57.95 57.99	4.20 4.46	4.10 3.53	Calro Milling Co., Calro, Ill.
Middlings .....	903	Guarant'd Analysis Official Analysis...	5.00 5.18	16.00 17.81	57.00 58.90	4.50 4.21	..... 3.66	H. C. Cole Milling Co., Chester, Ill.
Pure Wheat Middlings....	904	Guarant'd Analysis Official Analysis...	4.58 5.02	16.04 17.90	62.48 56.65	4.17 5.16	..... 4.31	The Dunlop Milling Co., Clarksville, Tenn.
Heavy Draught Feed.....	905	Guarant'd Analysis Official Analysis...	..... 5.57	10.35 10.71	64.43 66.64	3.42 2.68	..... 2.19	United Grocery Co., Jacksonville, Fla.
"Purity" Bran .....	906	Guarant'd Analysis Official Analysis...	..... 7.81	14.00 13.00	54.00 57.07	3.50 3.78	..... 6.26	Calro Milling Co., Calro, Ill.

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Fibre.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURER.
Victor Feed .....	907	Guarant'd Analysis Official Analysis...	12.00 10.13	7.50 10.00	62.00 63.42	3.00 3.27	..... 3.50	The Quaker Oats Co., Chicago, Ill.
Purina Feed .....	908	Guarant'd Analysis Official Analysis...	8.90 11.19	12.50 12.02	58.00 57.53	4.00 4.75	..... 3.79	Ralston Purina Co., St. Louis, Mo.
Pure Wheat Shorts .....	909	Guarant'd Analysis Official Analysis...	6.00 5.88	16.00 15.55	48.00 58.42	4.00 3.64	..... 3.68	Liberty Mills, Nashville, Tenn.
Star Middlings .....	910	Guarant'd Analysis Official Analysis...	8.00 8.61	15.00 16.32	54.00 55.10	4.00 4.53	..... 4.80	Star & Crescent Milling Co., Chicago, Ill.
Barley Mixed Oats .....	911	Guarant'd Analysis Official Analysis...	..... 9.85	..... 11.27	..... 62.86	..... 2.99	..... 2.86	Atlantic & Gulf Grocery Co., Jacksonville, Fla.
Protena Feed .....	912	Guarant'd Analysis Official Analysis...	9.70 12.91	12.00 11.27	57.00 59.91	3.80 3.60	..... 3.17	Ralston Purina Co., St. Louis, Mo.
Lillie Bran .....	913	Guarant'd Analysis Official Analysis...	8.50 8.84	15.00 15.01	56.50 57.12	4.00 3.11	..... 5.77	Lillie Mill Co., Franklin, Tenn.
Schumacher Scratching Orains .....	914	Guarant'd Analysis Official Analysis...	4.50 2.84	10.50 9.75	64.00 70.98	3.00 2.19	..... 2.00	The Quaker Oats Co., Chicago, Ill.

Stafoilife Feed .....	915	Guarant'd Analysis Official Analysis...	12.75 12.99	11.00 10.66	53.00 55.45	6.00 4.72	..... 5.60	Lawrence & Hamilton Feed Co., New Orleans, La.
Nutriline .....	916	Guarant'd Analysis Official Analysis...	10.00 8.44	12.00 13.51	53.00 56.08	3.50 4.00	..... 7.22	Nutriline Milling Co., Crowley, La.
Vim Horse Feed.....	917	Guarant'd Analysis Official Analysis...	10.50 10.10	10.00 10.71	60.00 61.75	3.75 1.54	..... 4.09	The Quaker Oats Co., Chicago, Ill.
Cotton Seed Meal.....	918	Guarant'd Analysis Official Analysis...	..... 10.98	38.62 32.80	..... 35.14	..... 8.49	..... 5.51	Georgia Cotton Oil Co., Macon, Ga.
Cotton Seed Meal.....	919	Guarant'd Analysis Official Analysis...	..... 6.75	38.62 39.26	..... 31.35	..... 8.75	..... 6.04	Grovania Fertilizer & Oil Co., Grovania, Ga.
Cotton Seed Meal.....	920	Guarant'd Analysis Official Analysis...	..... 8.16	38.62 37.29	..... 33.41	..... 6.98	..... 5.94	Vienna Cotton Oil Co., Vienna, <sup>La.</sup> Ga.
Globe Gluten Feed.....	921	Guarant'd Analysis Official Analysis...	..... 8.23	24.00 26.32	51.00 51.48	2.50 2.15	..... 3.12	Corn Products Refining Co., New York, N. Y.
Stafoilife Feed .....	922	Guarant'd Analysis Official Analysis...	12.75 14.05	11.00 11.97	53.00 52.36	6.00 3.98	..... 8.42	Lawrence & Hamilton Feed Co., New Orleans, La.
Protena .....	923	Guarant'd Analysis Official Analysis...	9.70 10.70	12.00 11.58	57.00 59.10	3.80 4.30	..... 3.72	Ralston Purina Co., St. Louis, Mo.
Pure Wheat Middlings....	924	Guarant'd Analysis Official Analysis...	6.12 4.65	15.00 17.55	56.00 57.33	6.40 4.64	..... 4.45	Maney Milling Co., Omaha, Neb.
Sugaration Stock Feed....	925	Guarant'd Analysis Official Analysis...	11.00 8.06	11.65 10.44	64.40 56.85	4.00 3.05	..... 4.01	Inter-State Milling Co., Mem- phis, Tenn.

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURER.
Sucrene Dairy Feed.....	926	Guarant'd Analysis Official Analysis...	12.00 10.81	16.50 17.29	46.00 49.83	3.50 2.81	..... 9.76	American Milling Co., Owens- boro, Ky.
Barley Mixed Oats.....	927	Guarant'd Analysis Official Analysis...	11.00 13.32	10.00 10.53	40.00 58.61	3.00 3.51	..... 3.42	R. R. Detre, Philadelphia, Pa.
Forest City Feed Meal....	928	Guarant'd Analysis Official Analysis...	..... 18.73	23.00 23.85	30.00 38.38	4.00 6.25	..... 4.69	The Southern Cotton Oil Co., Savannah, Ga. 86
Sugaration Stock Feed....	929	Guarant'd Analysis Official Analysis...	11.00 10.58	11.65 17.29	64.40 51.68	4.00 3.50	..... 5.12	Inter-State Milling Co., Mem- phis, Tenn.
Pure Wheat Middlings....	930	Guarant'd Analysis Official Analysis...	8.00 7.73	16.00 17.06	40.00 54.74	5.00 4.60	..... 4.42	Taylor-Oreer Grain Co., Mem- phis, Tenn.
Star Middlings .....	931	Guarant'd Analysis Official Analysis...	8.00 6.85	15.00 16.27	54.00 56.12	4.00 4.62	..... 4.27	Star & Crescent Milling Co., Chicago, Ill.
Bran and Shorts .....	932	Guarant'd Analysis Official Analysis...	8.00 5.79	14.50 15.00	58.62 58.95	4.00 4.17	..... 4.62	Atlanta Milling Co., Atlanta, Ga.
Alfalfa Meal .....	933	Guarant'd Analysis Official Analysis...	..... 31.10	..... 10.48	..... 37.38	..... 1.10	..... 6.77	Kornalfalfa Feed Milling Co., Kansas City, Mo.

Cotton Seed Meal .....	934	Guarant'd Analysis Official Analysis...	..... 10.40	38.52 33.87	..... 33.31	..... 8.55	..... 5.22	Florida Cotton Oil Co., Jackson- ville, Fla.
Mill Feed Compound.....	935	Guarant'd Analysis Official Analysis...	9.50 4.77	13.00 13.43	58.62 63.79	4.00 3.15	..... 3.96	Atlanta Milling Co., Atlanta, Ga.
Cotton Seed Meal.....	936	Guarant'd Analysis Official Analysis...	..... 8.65	38.52 37.21	..... 31.47	..... 8.20	..... 5.87	Florida Cotton Oil Co., Talla- hassee, Fla.
Cereal Stock Feed.....	937	Guarant'd Analysis Official Analysis...	11.50 11.60	13.00 13.12	55.00 53.30	4.00 2.98	..... 4.04	J. B. Edgar Grain Co., Mem- phis, Tenn.
Sucrens Horses & Mule Feed	938	Guarant'd Analysis Official Analysis...	12.00 10.45	10.00 8.00	50.00 63.41	2.50 2.14	..... 5.45	American Milling Co., Chicago, Ill.
Cremo Brand, Second Class Cotton Seed Meal.....	939	Guarant'd Analysis Official Analysis...	..... 22.15	20.00 20.84	30.00 38.85	5.00 4.50	..... 3.75	Tennessee Fiber Co., Memphis, Tenn.
Cotton Seed Meal.....	940	Guarant'd Analysis Official Analysis...	..... 19.72	25.00 21.41	..... 38.23	..... 6.10	..... 4.67	Florida Cotton Oil Co., Talla- hassee, Fla.
Prime Cotton Seed Meal..	941	Guarant'd Analysis Official Analysis...	..... 11.75	38.62 34.40	..... 32.44	..... 6.70	..... 5.75	Alabama Cotton Oil Co., Mont- gomery, Ala.
Cotton Seed Meal .....	942	Guarant'd Analysis Official Analysis...	..... 8.20	38.62 37.60	..... 30.34	..... 8.27	..... 5.82	The Southern Cotton Oil Co., Pensacola, Fla.
Pure Wheat Shipstuf.....	943	Guarant'd Analysis Official Analysis...	6.05 3.30	18.13 17.11	56.22 57.37	5.92 4.67	..... 7.02	Home Mill & Grain Co., Mount Vernon, Ind.
Cotton Seed Feed Meal....	944	Guarant'd Analysis Official Analysis...	28.00 19.05	25.00 22.09	53.00 39.38	5.00 5.49	..... 4.07	J. Lindsay Wells Co., Memphis, Tenn.

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURERS.
Standard Middlings .....	945	Guarant'd Analysis .....	14.50	50.00	4.00	.....	.....	Washburn-Cresby Co., Minneap- olls, Minn.
		Official Analysis...	7.03	15.03	57.09	5.28	4.50	
Pure Wheat Middlings....	946	Guarant'd Analysis .....	5.18	17.11	58.18	4.41	.....	Geo. P. Plant Milling Co., St. Louis, Mo.
		Official Analysis...	4.95	16.98	57.68	5.00	3.72	
Alfalfa Meal .....	947	Guarant'd Analysis .....	35.00	8.00	32.00	.....	.....	Kornalfalfa Feed Milling Co., Kansas City, Mo.
		Official Analysis...	33.07	10.14	38.07	1.82	5.05	
Boss Chop Feed .....	948	Guarant'd Analysis .....	11.00	8.50	60.30	3.50	.....	The Great Western Cereal Co., Chicago, Ill.
		Official Analysis...	8.15	8.78	64.75	4.65	3.53	
Corno Horse and Mule Feed	949	Guarant'd Analysis .....	12.00	10.00	58.50	3.50	.....	The Corno Mills Co. St. Louis, Mo.
		Official Analysis...	12.50	10.09	56.84	3.77	3.85	
Pure Wheat Bran .....	950	Guarant'd Analysis .....	10.00	14.00	53.50	4.25	.....	Nelson Grain Co., Kansas City, Mo.
		Official Analysis...	7.79	16.06	50.65	4.03	6.47	
Barley Mixed Oats .....	951	Guarant'd Analysis .....	11.00	9.00	40.00	3.00	.....	L. F. Miller & Sons, Philadel- phia, Pa.
		Official Analysis...	9.70	8.78	61.47	3.60	4.30	
Boss Chop Feed .....	952	Guarant'd Analysis .....	11.00	8.50	60.00	3.50	.....	The Great Western Cereal Co., Chicago, Ill.
		Official Analysis...	13.22	8.56	60.82	4.00	3.72	



Blood Meal .....	953	Guarant'd Analysis Official Analysis...	1.50 2.60	80.00 83.20	..... 1.70	..... 2.87	The Armour Fertilizer Works, Jacksonville, Fla.
"Purity" Bran .....	954	Guarant'd Analysis Official Analysis...	..... 7.63	13.40 15.94	54.00 54.29	4.00 4.75	Calro Milling Co., Calro, Ill.
Poultry Feed .....	955	Guarant'd Analysis Official Analysis...	4.00 4.49	11.00 11.19	65.00 66.29	3.60 3.96	Ralston Purina Co., St. Louis, Mo.
Cotton Seed Meal .....	956	Guarant'd Analysis Official Analysis...	..... 10.76	38.62 37.82	..... 30.00	..... 7.97	Georgia Cotton Oil Co., Macon, Oa.
Corno Horse and Mule Feed	957	Guarant'd Analysis Official Analysis...	12.00 12.08	10.00 10.67	58.50 57.36	3.50 4.30	The Corno Mills Co., St. Louis, Mo.
Choice Bran .....	958	Guarant'd Analysis Official Analysis...	9.50 9.43	14.95 15.93	53.29 52.43	5.35 4.58	Hecker-Jones-Jewell Milling Co., New York, N. Y.
Pure Wheat Bran and Shorts .....	959	Guarant'd Analysis Official Analysis...	7.65 7.76	14.75 14.47	54.50 52.34	4.50 4.47	Barrett, Denton & Lynn Co., Dalton, Ga.
Corno Ox Feed .....	960	Guarant'd Analysis Official Analysis...	14.00 16.47	10.00 8.78	58.00 56.54	3.50 3.55	The Corno Mills Co., St. Louis, Mo.
Pure Wheat Bran .....	961	Guarant'd Analysis Official Analysis...	9.50 9.16	14.50 15.40	50.00 52.65	4.00 4.64	Alabama Corn Mills Co., Mo- bile, Ala.
Sea Island Cotton Seed Meal .....	962	Guarant'd Analysis Official Analysis...	..... 18.65	24.20 22.29	..... 40.79	..... 4.55	Sea Island Cotton Oil Co., Charleston, S. C.
Cotton Seed Meal .....	963	Guarant'd Analysis Official Analysis...	..... 10.95	38.60 38.26	..... 27.41	..... 9.64	The Southern Cotton Oil Co., Savannah, Ga.

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURER.
Choice Bran .....	964	Guarant'd Analysis Official Analysis...	9.50 8.69	14.95 15.71	53.25 53.87	5.35 4.01	..... 5.98	Hecker-Jones-Jewell Milling Co., New York, N. Y.
Wheat Shorts .....	965	Guarant'd Analysis Official Analysis...	7.50 5.07	13.75 14.53	62.00 61.02	4.35 4.81	..... 3.35	Dahnke-Walker Milling Co., Union City, Tenn.
H. Middlings .....	966	Guarant'd Analysis Official Analysis...	8.05 8.82	17.38 18.04	52.92 51.59	6.05 5.82	..... 5.02	Hecker-Jones-Jewell Milling Co., New York, N. Y.
Hammond Dalry Feed ....	967	Guarant'd Analysis Official Analysis...	11.00 12.13	17.00 17.37	50.00 48.12	3.00 4.50	..... 6.34	Western Grain Products Co., Hammond, Ind.
Mill Feed .....	968	Guarant'd Analysis Official Analysis...	4.43 8.50	12.33 12.90	65.39 59.08	4.32 3.45	..... 5.00	Riverside Milling and Power Co., Cartersville, Ga.
Boss Chop Feed .....	969	Guarant'd Analysis Official Analysis...	11.00 10.00	8.00 8.21	60.00 64.04	3.50 4.56	..... 3.77	The Great Western Cereal Co., Chicago, Ill.
Ballard's Shipstuff .....	970	Guarant'd Analysis Official Analysis...	5.83 5.05	17.37 16.23	46.58 59.63	4.41 3.70	..... 4.10	Ballard & Ballard Co., Louis- ville, Ky.
Dried Molasses Beet Pulp..	971	Guarant'd Analysis Official Analysis...	20.00 19.37	8.00 9.07	60.00 58.68	0.50 0.30	..... 2.69	The Larrowe Milling Co., De- troit, Mich.

Pure Wheat Middlings ....	972	Guarant'd Analysis Official Analysis...	6.00 5.58	16.04 16.09	62.48 63.98	4.17 4.30	..... 4.15	The Dunlop Milling Co., Clarksville, Tenn.
Choice Bran .....	973	Guarant'd Analysis Official Analysis...	9.50 10.32	14.95 16.56	53.25 50.52	5.35 4.74	..... 5.89	Hecker-Jones-Jewell Milling Co., New York, N. Y.
Excelsior Chop Feed .....	974	Guarant'd Analysis Official Analysis...	11.00 10.72	8.00 8.12	60.00 60.93	3.50 3.00	..... 3.10	The Great Western Cereal Co., Chicago, Ill.
Thoroughbred Feed .....	975	Guarant'd Analysis Official Analysis...	6.58 6.13	15.05 16.54	59.98 57.73	3.34 3.30	..... 5.45	Lexington Roller Mills Co., Lexington, Ky.
Durham Brand Cotton Seed Meal .....	976	Guarant'd Analysis Official Analysis...	..... 17.56	25.75 25.71	..... 36.85	..... 6.51	..... 4.55	Florida Cotton Oil Co., Jackson- ville, Fla.
Purina Feed .....	977	Guarant'd Analysis Official Analysis...	8.90 9.75	12.50 11.41	58.00 58.88	4.00 4.12	..... 3.30	Alaton Purina Co., St. Louis, Mo.
Bran and Shorts .....	978	Guarant'd Analysis Official Analysis...	8.00 6.13	14.50 16.72	58.62 57.58	4.00 4.12	..... 4.80	Atlanta Milling Co., Atlanta, Ga.
Pure Winter Wheat Mid- dlings .....	979	Guarant'd Analysis Official Analysis...	4.20 5.05	16.00 16.67	56.00 58.47	4.20 4.82	..... 4.09	Edwardsville Milling Co., Ed- wardsville, Ill.
Daisy Dairy Feed .....	980	Guarant'd Analysis Official Analysis...	12.00 12.80	15.00 15.57	50.00 49.62	3.00 2.55	..... 6.92	The Great Western Cereal Co., Chicago, Ill.
Middlings .....	981	Guarant'd Analysis Official Analysis...	3.85 4.90	16.12 16.67	57.38 59.27	6.05 4.05	..... 4.01	Charlesto Milling Co., Charles- ton, Mo.
Pure Wheat Shorts .....	982	Guarant'd Analysis Official Analysis...	6.42 4.46	16.00 19.92	48.00 55.98	4.00 3.57	..... 3.88	Alabama Corn Mills Co., Mo- bile, Ala.

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, GR BRAND.	Laboratory Number.		Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURERS.
Wheat Middlings .....	983	Guarant'd Analysis Official Analysis...	2.65 1.65	15.27 14.92	64.18 68.25	3.38 2.25	..... 2.12	Cairo Milling Co., Cairo, Ill.
Pure Wheat Bran .....	984	Guarant'd Analysis Official Analysis...	11.04 11.08	14.97 14.92	52.03 53.10	3.50 3.24	6.72 6.96	Millstadt Milling Co., Mill- stadt, Ill.
Globe Gluten Feed .....	985	Guarant'd Analysis Official Analysis...	..... 8.71	24.00 25.52	51.00 52.23	2.50 2.41	..... 1.99	Corn Products Refining Co., New York. 94
Protena Dairy Feed .....	986	Guarant'd Analysis Official Analysis...	16.00 16.15	20.00 19.04	48.00 45.11	3.50 4.63	..... 5.32	Ralston Purina Co., St. Louis, Mo.
Wheat Bran .....	987	Guarant'd Analysis Official Analysis...	8.45 7.93	14.50 17.11	54.16 54.47	3.75 3.35	..... 6.20	Texas Star Flour Mills, Gal- veston, Texas.
Dark Cotton Seed Meal...	988	Guarant'd Analysis Official Analysis...	..... 16.98	23.17 23.34	..... 38.08	..... 6.52	..... 5.56	The Southern Cotton Oil Co., Charleston, S. C.
Cotton Seed Meal .....	989	Guarant'd Analysis Official Analysis...	7.00 10.44	38.62 39.09	24.00 28.73	9.00 3.89	..... 4.89	J. Lindsay Wells Co., Memphis, Tenn.
Cracker Mule Feed.....	990	Guarant'd Analysis Official Analysis...	12.00 12.60	10.00 11.32	58.00 58.98	3.50 2.00	..... 3.62	The Quaker Oats Co., Chicago, Ill.

Wheat Middlings .....	991	Guarant'd Analysis Official Analysis...	8.00 10.52	17.00 16.85	50.00 49.05	5.00 4.98	..... 5.00	W. A. Coombs Milling Co., Cold Water, Mich.
Choice Bran .....	992	Guarant'd Analysis Official Analysis...	9.50 11.27	14.95 14.48	53.25 51.90	5.35 4.50	..... 6.22	Hecker-Jones-Jewell Milling Co., New York.
Pine Leaf Middlings.....	993	Guarant'd Analysis Official Analysis...	6.10 6.03	15.75 17.25	57.95 55.56	4.20 4.45	4.10 5.14	Calro Milling Co., Calro, Ill.
Pure Wheat Bran .....	994	Guarant'd Analysis Official Analysis...	9.50 10.60	14.50 14.92	50.00 51.66	4.00 3.77	..... 6.82	Liberty Mills, Nashville, Tenn.
Wheat Middlings .....	995	Guarant'd Analysis Official Analysis...	8.00 10.86	17.00 17.20	50.00 48.04	5.00 5.21	..... 5.42	W. A. Coombs Milling Co., Cold Water, Mich.
Sucrene Dairy Feed.....	996	Guarant'd Analysis Official Analysis...	12.00 8.60	16.50 17.81	46.00 49.89	3.50 3.60	..... 9.11	American Milling Co., Chicago, <sup>Ill.</sup>
Pure Wheat Middlings....	997	Guarant'd Analysis Official Analysis...	7.00 10.00	16.00 16.35	56.00 52.90	4.00 4.93	..... 4.67	National Feed Co., St. Louis, Mo.
Ground Corn and Oats....	998	Guarant'd Analysis Official Analysis...	5.80 4.65	10.75 10.75	65.00 64.70	5.15 5.63	..... 2.30	Baker & Holmes Co., Jackson- ville, Fla.
Malzefalfa Feed .....	999	Guarant'd Analysis Official Analysis...	11.00 11.35	10.00 10.44	60.00 59.81	4.00 4.15	..... 3.90	The Great Western Cereal Co., Chicago, Ill.
Purina Feed .....	1000	Guarant'd Analysis Official Analysis...	8.90 9.92	12.50 11.67	58.00 59.52	4.00 4.45	..... 3.03	Ralston Purina Co., St. Louis, Mo.
Creamo Dairy Feed.....	1001	Guarant'd Analysis Official Analysis...	19.50 24.83	14.50 14.35	45.00 41.65	5.00 4.02	..... 5.05	The Corno Mills Co., St. Louis, Mo.

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURERS.
Stafolife Feed .....	1002	Guarant'd Analysis Official Analysis...	12.75 15.48	11.00 10.27	53.00 49.15	6.00 5.42	..... 9.32	Lawrence & Hamilton Co., New Orleans, La.
Cotton Seed Meal.....	1003	Guarant'd Analysis Official Analysis...	..... 11.03	38.52 37.64	..... 28.32	..... 7.50	..... 5.39	Florida Cotton Oil Co., Jack- sonville, Fla.
Excelsior Chop Feed.....	1004	Guarant'd Analysis Official Analysis...	11.00 9.85	8.00 8.34	60.00 62.17	3.50 5.06	..... 3.02	The Great Western Cereal Co., Chicago, Ill.
Pure Wheat Middlings....	1005	Guarant'd Analysis Official Analysis...	7.00 10.89	16.00 17.11	56.00 49.28	4.00 5.36	..... 4.62	National Feed Co., St. Louis, Mo.
Pure Wheat Bran.....	1006	Guarant'd Analysis Official Analysis...	9.50 8.21	14.50 14.65	54.00 53.49	5.00 4.03	..... 6.13	Tennessee Mill Co., Estill Springs, Tenn.
Cotton Seed Meal.....	1007	Guarant'd Analysis Official Analysis...	..... 10.52	38.62 38.79	..... 24.38	..... 7.95	..... 8.23	Montezuma Mfg. Co., Monte- zuma, Ga.
Cotton Seed Meal.....	1008	Guarant'd Analysis Official Analysis...	..... 13.87	38.62 38.17	..... 24.38	..... 7.08	..... 5.62	Camilla Cotton Oil and Fertil- izer Co., Camilla, Ga.
Durham Brand, C. S. M....	1009	Guarant'd Analysis Official Analysis...	..... 21.04	25.75 25.27	..... 26.83	..... 8.05	..... 2.92	Florida Cotton Oil Co., Jack- sonville, Fla.

7-Bul.	"Arab" Horse Feed.....	1010	Guarant'd Analysis	15.00	9.00	59.00	2.00	.....	M. C. Peters Mill Co., Omaha, Neb.
			Official Analysis...	11.73	10.27	69.68	2.38	4.52	
	Star Middlings .....	1011	Guarant'd Analysis	8.00	15.00	54.00	4.00	.....	Star and Crescent Milling Co., Chicago, Ill.
			Official Analysis...	8.32	16.50	55.80	5.54	2.47	
	Action Horse Feed.....	1012	Guarant'd Analysis	.....	11.50	53.60	4.20	.....	Commonwealth Feed Mills Co., St. Louis, Mo.
			Official Analysis...	18.90	14.92	47.59	3.02	4.65	
	Wheat Middlings .....	1013	Guarant'd Analysis	8.50	14.50	45.00	5.10	5.50	Hubbard Milling Co., Mankato, Minn.
			Official Analysis...	8.25	15.09	53.83	5.88	5.73	
	Pure Wheat Middlings....	1014	Guarant'd Analysis	5.18	17.11	58.18	4.41	.....	George P. Plant Milling Co., St. Louis, Mo.
			Official Analysis...	4.98	17.02	59.06	4.65	3.13	
	Peck's Milo Feed.....	1015	Guarant'd Analysis	11.90	10.00	57.00	3.80	.....	Illinois Feed Mills, St. Louis, Mo.
			Official Analysis...	14.05	11.35	51.31	4.36	8.25	
	Blue Ribbon Feed.....	1016	Guarant'd Analysis	10.50	9.75	62.00	3.75	.....	The Quaker Oats Co., Chicago, Ill.
			Official Analysis...	10.91	9.96	61.70	2.58	4.10	
	Wheat Bran .....	1017	Guarant'd Analysis	10.00	14.85	54.60	3.58	.....	Yate & Donelson Co., Mem- phis, Tenn.
			Official Analysis...	7.65	14.92	56.60	3.87	5.21	
	Pure Wheat Bran.....	1018	Guarant'd Analysis	9.50	14.50	52.00	4.00	.....	J. Allen Smith Co., Knoxville, Tenn.
			Official Analysis...	8.02	14.65	53.94	3.89	6.53	
	Cotton Seed Meal.....	1019	Guarant'd Analysis	.....	38.62	.....	.....	.....	The Buckeye Cotton Oil Co., Selma, Ala.
			Official Analysis...	11.76	38.00	28.77	6.25	5.40	
	Cotton Seed Meal.....	1020	Guarant'd Analysis	.....	38.62	.....	.....	.....	The Southern Cotton Oil Co., Pensacola, Fla.
			Official Analysis...	14.17	40.45	20.85	7.99	6.15	

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURERS.
Schumacher Special Horse Feed .....	1021	Guarant'd Analysis Official Analysis...	8.00 7.66	9.25 9.39	64.50 66.92	3.25 2.70	..... 2.64	The Quaker Oats Co., Chicago, Ill.
Choice Bran .....	1022	Guarant'd Analysis Official Analysis...	9.50 11.34	14.95 15.01	53.25 51.21	5.35 3.02	..... 5.53	Hecker-Jones-Jewell Milling Co., New York.
Corno Horse & Mule Feed	1023	Guarant'd Analysis Official Analysis...	12.00 11.31	10.00 10.27	58.50 59.74	3.50 3.05	..... 3.66	The Corno Mills Co., St. Louis, Mo. 86
Hammond Dalry Feed....	1024	Guarant'd Analysis Official Analysis...	11.00 12.23	17.00 17.50	50.00 47.19	3.00 2.98	..... 8.08	Western Grain Products Co., Hammond Ind.
Wheat Bran .....	1025	Guarant'd Analysis Official Analysis...	10.50 8.70	14.00 14.39	65.00 55.66	3.95 3.71	..... 5.87	Dahnke-Walker Milling Co., Union City, Tenn.
U-N-I. Feed, "A" Grade....	1026	Guarant'd Analysis Official Analysis...	14.40 14.85	13.03 12.46	53.47 48.97	2.15 2.82	..... 8.75	United Grocery Co., Jackson- ville, Fla.
Ship Stuff .....	1027	Guarant'd Analysis Official Analysis...	7.00 6.98	14.50 14.65	54.00 57.43	4.00 4.18	..... 4.52	The Dunlop Mills, Richmond, Va.
Purina Feed .....	1028	Guarant'd Analysis Official Analysis...	8.90 11.35	12.50 12.55	58.00 56.16	4.00 3.11	..... 4.37	Ralston Purina Co., St. Louis, Mo.



Pure Wheat Bran.....	1029	Guarant'd Analysis Official Analysis...	9.50 10.16	14.50 14.74	54.00 53.72	5.00 3.13	..... 6.32	Tennessee Mill Co., Estlin Springs, Tenn.
Bran and Shorts Mixed..	1030	Guarant'd Analysis Official Analysis...	7.36 6.35	16.14 16.67	56.36 57.12	4.55 3.34	..... 4.64	Lille Mill Co., Franklin, Tenn.
U-N-I. Dalry Feed.....	1031	Guarant'd Analysis Official Analysis...	11.85 11.97	21.59 20.71	47.31 45.66	3.98 4.88	..... 5.19	United Grocery Co., Jackson- ville, Fla.
Colton Seed Meal.....	1032	Guarant'd Analysis Official Analysis...	..... 11.30	38.62 38.61	..... 26.91	..... 8.00	..... 5.65	Montezuma Manufacturing Co., Montezuma, Ga.
Victor Feed .....	1033	Guarant'd Analysis Official Analysis...	12.00 9.45	7.50 7.99	62.00 63.65	3.00 3.57	..... 3.08	The Quaker Oats Co., Chicago, Ill.
Heavy Draught Feed.....	1034	Guarant'd Analysis Official Analysis...	4.30 5.90	10.35 10.27	64.43 63.37	3.42 4.21	..... 4.17	United Grocery Co., Jackson- ville, Fla.
U-N-I. Scratch Feed.....	1035	Guarant'd Analysis Official Analysis...	4.50 2.08	10.50 10.30	64.50 69.95	3.50 3.41	..... 1.55	United Grocery Co., Jackson- ville, Fla.
Pure Wheat Bran.....	1036	Guarant'd Analysis Official Analysis...	9.50 10.78	15.50 15.36	54.00 50.98	4.50 3.77	..... 6.17	City Mill and Grain Co., Colum- bia, Tenn.
M. Middlings .....	1037	Guarant'd Analysis Official Analysis...	5.70 6.84	17.81 17.29	54.44 55.64	6.40 4.00	4.55 4.32	Hecker-Jones-Jewell Milling Co., New York.
Wheat Feed .....	1038	Guarant'd Analysis Official Analysis...	8.00 5.98	15.00 14.13	58.00 59.27	4.00 3.47	..... 4.15	Atlanta Milling Co., Atlanta, Ga.
M. Middlings .....	1039	Guarant'd Analysis Official Analysis...	5.70 6.05	17.81 16.15	54.44 58.49	6.40 3.82	4.55 4.08	Hecker-Jones-Jewell Milling Co., New York.

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURERS.
Boss Feed .....	1040	Guarant'd Analysis	11.00	8.00	60.00	3.50	.....	The Great Western Cereal Co.,
		Official Analysis...	11.62	8.30	61.56	4.12	4.58	Chicago, Ill.
Purina Feed .....	1041	Guarant'd Analysis	8.90	12.50	58.00	4.00	.....	Ralston Purina Co., St. Louis,
		Official Analysis...	9.18	12.02	60.18	4.02	3.45	Mo.
El Reno Alfalfa.....	1042	Guarant'd Analysis	16.00	12.00	58.00	2.50	.....	El Reno Alfalfa Milling Co.,
		Official Analysis...	17.70	12.46	50.68	2.50	4.79	El Reno, Okla.
Chamberlain's Perfect Feed	1043	Guarant'd Analysis	6.00	10.00	60.00	3.50	.....	W. F. Chamberlain Feed Co.,
		Official Analysis...	3.40	9.65	65.65	2.88	6.30	St. Louis, Mo.
Winter Wheat Middlings..	1044	Guarant'd Analysis	7.00	16.00	56.00	4.00	.....	National Feed Co., St. Louis,
		Official Analysis...	7.47	16.15	56.07	4.90	4.96	Mo.
Soft Wheat Mixed Feed..	1045	Guarant'd Analysis	8.00	14.50	55.00	4.00	.....	Hunter-Robinson-Wenz Milling
		Official Analysis...	8.89	14.40	55.90	3.66	5.57	Co., St. Louis, Mo.
Pure Wheat Bran.....	1046	Guarant'd Analysis	9.50	14.50	50.00	4.00	.....	Liberty Mills, Nashville, Tenn.
		Official Analysis...	10.00	14.22	54.29	3.55	6.57	
Acme Feed .....	1047	Guarant'd Analysis	.....	6.00	50.00	3.00	.....	Valley Milling Co., St. Louis,
		Official Analysis...	2.52	9.65	71.73	2.90	1.63	Mo.

Wheat Bran .....	1048	Guarant'd Analysis	.....	14.30	55.20	3.55	.....	Bernett, Craft & Kauffman
		Official Analysis...	10.96	15.18	51.69	4.35	6.50	Milling Co., St. Louis, Mo.
Stafollife Feed .....	1049	Guarant'd Analysis	12.75	11.00	53.00	6.00	.....	Lawrence & Hamilton Feed Co.,
		Official Analysis...	10.93	10.45	55.42	5.34	8.78	New Orleans, La.
Cooked Horse Feed.....	1050	Guarant'd Analysis	10.00	11.50	60.76	5.48	.....	Nashville Feed Co., Nashville,
		Official Analysis...	7.19	11.50	60.98	3.75	6.33	Tenn.
Cotton Seed Meal, Forest	1051	Guarant'd Analysis	.....	23.00	30.00	4.50	.....	The Southern Cotton Oil Co.,
City Brand .....		Official Analysis...	18.18	23.08	34.97	6.14	4.93	Savannah, Ga.
Cotton Seed Meal.....	1052	Guarant'd Analysis	.....	38.62	.....	.....	.....	Central Oil and Fertilizer Co.,
		Official Analysis...	8.40	38.70	30.13	8.43	6.10	Cordele, Ga.
Cotton Seed Meal.....	1053	Guarant'd Analysis	.....	38.62	.....	.....	.....	McCaw Manufacturing Co., Ma-
		Official Analysis...	12.83	35.68	21.26	7.11	5.45	con, Ga.
Cotton Seed Meal.....	1054	Guarant'd Analysis	.....	38.62	.....	.....	.....	Americus Oil Co., Americus,
		Official Analysis...	11.84	37.91	29.53	6.46	5.30	Ga.
White Shorts .....	1055	Guarant'd Analysis	5.70	17.81	54.44	6.40	4.55	Hecker Jones Jewell Milling
		Official Analysis...	6.42	16.76	55.40	4.18	5.49	Co., New York, N. Y.
Winter Wheat Fancy Shorts	1056	Guarant'd Analysis	3.90	16.36	62.66	4.50	3.15	Akin-Erskine Milling Co., Ev-
		Official Analysis...	5.40	16.50	54.72	4.26	7.52	ansville, Ind.
Alla Fat Horse Feed.....	1057	Guarant'd Analysis	10.50	12.00	61.96	3.75	.....	Just Milling and Feed Co.,
		Official Analysis...	9.46	13.51	57.31	3.29	4.44	Nashville, Tenn.
Cotton Seed Meal.....	1058	Guarant'd Analysis	12.00	38.62	23.00	6.00	.....	Keeton-Krueger Co., Atlanta
		Official Analysis...	9.15	40.63	29.20	7.14	5.63	Ga.

OFFICIAL FEEDING STUFF ANALYSES, 1910—Continued.

NAME, OR BRAND.	Laboratory Number.		Fiber.	Protein.	Starch and Sugar.	Fat.	Ash.	NAME AND ADDRESS OF MANUFACTURERS.
Pure Wheat Bran.....	1059	Guarant'd Analysis Official Analysis...	9.50 9.42	14.50 15.01	52.00 53.91	4.00 3.37	..... 8.00	J. Allen Smith & Co., Knoxville, Tenn.
Acme Feed .....	1060	Guarant'd Analysis Official Analysis...	..... 3.27	6.00 8.51	50.00 71.81	3.00 3.23	..... 1.47	The Valley Milling Co., St. Louis, Mo.
Sucrene Horse and Mule Feed .....	1061	Guarant'd Analysis Official Analysis...	12.00 9.82	10.00 10.35	50.00 59.83	3.00 2.08	..... 5.13	American Milling Co., Chicago, Ill.
Cotton Seed Meal.....	1062	Guarant'd Analysis Official Analysis...	..... 11.07	38.62 38.26	..... 29.18	..... 7.09	..... 5.87	Quiltman Oil Co., Quiltman, Ga.

# DEPARTMENT OF AGRICULTURE—DIVISION OF CHEMISTRY.

## FOOD AND DRUGS SECTION.

P. E. ROSE, State Chemist.

SPECIAL FOOD ANALYSES, 1910.

A. M. HENRY, Asst. Chemist.

Samples Taken by Purchaser Under Section 10, Act Approved June 7, 1909.

## ALCOHOLIC DRINKS.

Laboratory Number.	NAME, OR BRAND.	MANUFACTURER.	Alcohol— (per cent by volume.)	FROM.
318	White Top .....	The Capitol Brewing and Ice Co., Montgomery, Ala.	4.87	C. F. Prevatt, Kissimmee, Sheriff of Osceola County.
317	Dukehart's Malt Tonic .....	Dukehart Manufacturing Co., Baltimore, Md.	.....	W. E. Dennard, Lake City, Sheriff of Columbia County.
318	Cider .....	.....	5.87	E. D. Webster, DeFuniak Springs, Deputy Sheriff of Walton County.
320	Bear .....	.....	2.77	R. T. Butler, Kissimmee.
321	White Top .....	The Capitol Brewing and Ice Co., Montgomery, Ala.	5.02	R. T. Butler, Kissimmee.
322	White Top .....	The Capitol Brewing and Ice Co., Montgomery, Ala.	3.03	C. F. Prevatt, Kissimmee, Sheriff of Osceola County.
323	Beer .....	.....	2.33	C. F. Prevatt, Kissimmee, Sheriff of Osceola County.
324	White Top .....	The Capitol Brewing and Ice Co., Montgomery, Ala.	4.88	C. F. Prevatt, Kissimmee, Sheriff of Osceola County.

## SPECIAL FOOD ANALYSES, 1910—ALCOHOLIC DRINKS.—Continued.

Laboratory Number.	NAME, OR BRAND.	MANUFACTURER.	Alcohol— (per cent by volume.)	FROM.
326	Tempero, less than 2 per cent. Alcohol.	Standard Brewing Co., New Orleans, La.	0.95	R. T. Butler, Kissimmee.
327	Cider .....	.....	5.09	Lee Hux, Eustis, Marshal.
328	White Top, less than 2 per cent. Alcohol.	The Capitol Brewing and Ice Co., Montgomery, Ala.	3.03	W. S. Preston, Bartow, County Judge of Polk County.
329	Georgia Home Beer .....	.....	3.42	E. H. Waters, Gainesville.
330	Florida Bud, less than 2 per cent. Alcohol.	The Florida Brewing Co., Tampa, Fla.	2.02	W. S. Preston, Bartow, County Judge of Polk County.
334	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.30	. W. Moore, Jr., Milligan.
335	Beer, "No. 1." .....	.....	3.85	J. P. Brown, Titusville, Sheriff of Bre- vard County.
336	Beer "No. 2." .....	.....	4.96	J. P. Brown, Titusville, Sheriff of Bre- vard County.
337	Tonic .....	.....	0.84	James S. Gee, Quincy, Marshall of Quincy.

338	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.62	A. D. Burnes, Graceville, Marshall of Graceville.
339	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.54	Paul Carter, Marianna.
340	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.54	Paul Carter, Marianna.
341	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.54	Paul Carter, Marianna.
342	Chatt.—1 71-100% alcohol.....	Chattanooga Brewing Co.....	2.33	T. L. McIntosh, Graceville.
343	Louisiana Golden Gema.....	New Orleans Brewing Co., New Orleans, La.	2.23	F. F. Pelt, Chipley.
344	Louisiana Golden Gema.....	New Orleans Brewing Co., New Orleans, La.	1.96	A. D. Carmichael, Chipley.
345	Uncle's Special—less than 2% al- cohol.	New Orleans Brewing Co., New Orleans, La.	1.72	Paul Carter, Marianna.
346	Louisiana Golden Gema.....	New Orleans, La. New Orleans Brewing Co.,	2.23	Paul Carter, Marianna.
347	A Beverage .....	.....	3.70	J. P. S. Houston, Tallahassee, Sheriff of Leon County.
348	"Acme" Maltale.....	Acme Brewing Co., Macon, Ga.	3.83	J. L. Davidson, Quincy.

## SPECIAL FOOD ANALYSES, ALCOHOLIC DRINKS—Continued.

Laboratory Number.	NAME, OR BRAND.	MANUFACTURER.	Alcohol— (per cent by volume.)	FROM.
349	Beer .....	Acme Brewing Co., Macon, Ga.	4.87	J. L. Davidson, Quincy.
350	Georgia Home Beer.....	.....	3.71	J. L. Davidson, Quincy.
351	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.52	Joel R. Wells, Panama City.
352	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.38	Joel R. Wells, Panama City.
353	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.44	Joel R. Wells, Panama City.
354	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.51	Joel R. Wells, Panama City.
355	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.44	John J. Ward, Panama City.



356	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.07	John J. Ward, Panama City.
357	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	5.00	John J. Ward, Panama City.
358	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	3.40	J. R. Sandlin, Punta Gorda.
359	White Top—less than 2% alcohol	The Capitol Brewing & Ice Co., Montgomery, Ala.	4.57	C. O. Andrews, DeFuniak Springs, County Judge of Walton County.
360	Duesseldorfer Style Beer.....	Indianapolis Brewing Co., In- dianapolis, Ind.	4.50	P. G. Ramsay, Gainesville, Sheriff of Alachua County.
361	Beer .....		4.25	P. G. Ramsay, Gainesville, Sheriff of Alachua County.
362	Beer .....		3.47	P. G. Ramsay, Gainesville, Sheriff of Alachua County.
363	Beer .....		3.58	P. G. Ramsay, Gainesville, Sheriff of Alachua County.
365	Near Beer.....		1.98	W. E. Dennard, Lake City, Sheriff of Columbia County.

SPECIAL FOOD ANALYSES, 1910—Continued.  
MISCELLANEOUS.

No.	NAME, OR BRAND.	RESULTS OF EXAMINATION.	FROM.
311	Sweet Potato Flour .....	Water (per cent.) ..... 8.23 Crude Fiber (per cent.)..... 1.92 Ash (per cent.) ..... 1.99 Protein (per cent.) ..... 1.76 Fat (per cent.) ..... 0.57 Starch (per cent.) ..... 58.20 Undetermined (per cent.)... 27.34	A. F. Spawn, Fernandina.
312	Cassava Flour .....	Water (per cent.) ..... 8.50 Crude Fiber (per cent.)..... 1.60 Ash (per cent.) ..... 1.30 Protein (per cent.) ..... 1.63 Fat (per cent.) ..... 0.46 Starch (per cent.) ..... 69.33 Undetermined (per cent.).... 17.18	A. F. Spawn, Fernandina.
314	Milk .....	Total Solids (per cent.)..... 4.85 Fat (per cent.) ..... 1.00 Solids Not Fat (per cent.)... 3.85	H. W. Smith, Punta Gorda.

319	Detroit Special Table Salt.....	Water (per cent.)..... 0.11	C. M. Puddy & Co., Palatka.
		Chloride, as Sodium Chlorid (per cent.) 97.32	
		Bicarbonates, as Sodium Bicarbonate (per cent.) 2.69	
325	Milk .....	Fat (per cent.)..... 2.60	Dr. J. E. Pennington, Wellborn.
331	Sugar .....	Ash (per cent.)..... 0.0055	B. J. Boodleson, Laurel Hill.
		Fuller's Earth .....Absent.	
332	Artificial Vanilla Extract.....	Specific gravity at 15° C..... 1.03125	Consolidated Grocery Co., Pensacola.
		Alcohol (per cent by vol.)....17.60	
		Vanillin (per cent)..... 0.564	
		Coumarin .....Absent	
		Resins .....Trace.	
		Coloring matter.....Caramel.	
		Lead acetate precipitate.....Slight.	
364	Base for Imitation Cider.....	Alcohol (per cent by vol.).... 7.57	Leon Fruto Co., Tallahassee.
366	Sirup .....	Sucrose (per cent.).....48.11	C. S. Dishong, Fort Meade.
		Glucose polarizing at 175° V (per cent)..... 4.60	

OFFICIAL FOOD ANALYSES, 1910—Continued.

CONFECTIONERY.

In the language of the Pure Food and Drugs Law of Florida confectionery is deemed to be adulterated "if it contains terra-alba, barytes, talc, chrome yellow or other mineral substance or poisonous color or flavor, or other ingredients deleterious or detrimental to health, or any vinous, malt, or spirituous liquor, or compound or narcotic drug."

The standard for confectionery is:

Candy is a product made from a saccharine substance or substances with or without the addition of harmless coloring, flavoring, or filling materials and contains no terra-alba, barytes, talc, chrome yellow, or other mineral substances, or poisonous colors or flavors, or other ingredients deleterious or detrimental to health, or any vinous, malt or spirituous liquor or compound, or narcotic drug.

No.	LABEL.	RETAILER.	Ash Per Cent.	COLOR.	REMARKS.
401-A	All-Day Suckers.....	Tampa Candy Co., Tampa.....	0.22	Cochineal.....	Legal.
401-B	Cocoanut Haystacks.....	Tampa Candy Co., Tampa.....	0.58	Vegetable.....	Legal.
401-C	Honey Kisses, Tibbetts Bros, Tampa, Florida.	Tampa Candy Co., Tampa.....	0.27	Vegetable.....	Legal.
402-A	Jelly Beans .....	S. H. Kress & Co., Tampa.....	0.20	Coal tar dye...	Legal.
402-B	Ellipse Jelly Drops.....	S. H. Kress & Co., Tampa.....	0.20	Coal tar dye...	Legal.
402-C	Queen Creams .....	S. H. Kress & Co., Tampa.....	0.12	Coal tar dye...	Legal.
402-D	Peppermint Lozenges .....	S. H. Kress & Co., Tampa.....	0.09	None.....	Legal.

402-E	Wintergreen .....	S. H. Kress & Co., Tampa.....	0.05	Coal tar dye...	Legal.
426-A	Stick Candy .....	E. J. Smith Co., Jacksonville.....	Trace	Coal tar dye...	Legal.
426-B	Peppermint Cakes .....	E. J. Smith Co., Jacksonville.....	Trace	Coal tar dye...	Legal.
426-C	Butter Cups .....	E. J. Smith Co., Jacksonville.....	0.41	Coal tar dye...	Legal.
426-D	Peanut Butter Kisses.....	E. J. Smith Co., Jacksonville.....	0.97	Coal tar dye...	Legal.
426-E	Smith's Mentopine Cough Drops	E. J. Smith Co., Jacksonville.....	0.04	Coal tar dye...	Legal.
427-A	Stick Candy .....	Van Deman & Lewis Co., Jacksonville	0.52	Coal tar dye...	Legal.
427-B	Jap Coconut .....	Van Deman & Lewis Co., Jacksonville	0.33	Coal tar dye...	Legal.
427-C	Mixed Candy .....	Van Deman & Lewis Co., Jacksonville	0.17	Coal tar dye...	Legal.
427-D	Novelty Whistles .....	Van Deman & Lewis Co., Jacksonville	0.11	Coal tar dye...	Legal.
427-E	Mint Balls .....	Van Deman & Lewis Co., Jacksonville	0.05	Coal tar dye...	Legal.

OFFICIAL FOOD ANALYSES, 1910—Continued.  
MISCELLANEOUS.

No.	Name, or Brand.	Manufacturer.	Retailer.	Results.	Remarks.
357	Dandelion Brand Butter Color.....	Wells & Richardson Co., Burlington, Vt.	Holmes Drug Co., Tal- lahassee.	Anatto dissolved in a vegeta- ble oil.	Legal.
428	Lucky Strike Fresh Roasted Coffee....	Savannah Coffee Co., Savannah, Ga.	Live Oak Grocery Co., Live Oak.	Moisture (per cent).....10.37 Fat (per cent)..... 8.85 Ash (per cent)..... 4.04 No adulteration detected by microscopic examination.	Legal.

OFFICIAL FOOD ANALYSIS, 1910.—Contd.  
BUTTER AND BUTTER SUBSTITUTES.—C

MANUFACTURER, OR WHOLESALE	RETAILER.
V. P. Sumner Co., Jacksonville, Fla.	S. S. Averitt, Jacksonville.
Marx Brothara, Jacksonville.	W. R. Parnell, Jacksonville.
t. H. Peck, New York, N. Y.	J. N. King, Fernandina.
r. Lopez & Co., New York, N. Y.	J. R. Reed, Fernandina.
Smith, Richardson & Conroy, Jackson- ville, Fla.	George Lewis, Jacksonville.
avis, Richardson & Barnette, Dalton, Ga.	George Wolf, Live Oak.
V. B. Johnson & Co., Jacksonville, Fla.	S. P. Mays, Live Oak.
ames Rowland & Co., New York, N. Y.	H. A. Blackburn, Live Oak.
deJournette & Co., Calhoun, Ga.	W. H. Slaughter, Perry.
ultman Grocery Co., Quitman, Ga.	W. H. Slaughter, Perry.
stone Produce Co., Dalton, Ga.	Vereen & Crews, Perry.
terling Butter Co., Aurora, Ill.	S. H. Peacock, Perry.
ingan & Co., Jacksonville, Fla.	W. E. Dean, Monticello.
. C. Williams & Co., New York, N. Y.	G. C. McCall, Monticello.
rmour & Co., Jacksonville, Fla.	O. P. Rhoad, Apalachicola.
ussell Crego & Son, New York, N. Y.	J. P. Hickey, Apalachicola.
wift & Co., Jacksonville, Fla.	C. H. Meluscher, Quincy.
mith, Richardson & Conroy, Jackson- ville, Fla.	R. C. Stearns, Quincy.
[. H. Johnson, Tallahassee, Fla.	Love & Hearin Co., Quincy.
H. McLaurin & Co., Jacksonville, Fla.	Brumby & Co., Quincy.
wift & Co., Pensacola, Fla.	Hoyt Bros. & Co., Pensacola.
wift & Co., Fort Worth, Texas.	A. McD. Moyer, Pensacola.
ewis Bros. & Co., New Orleans, La.	Will L. Moyer, Pensacola.
ewis Bear Co., Pensacola, Fla.	n. H. Jackson, DeFuniak Springs.
S. Wells, Tallahassee, Fla.	Randolph & Fenn, Tallahassee.
P. McCaskill, Tallahassee, Fla.	P. T. Mickler, Tallahassee.
P. Smith, Tallahassee, Fla.	VanBrunt & Demilly, Tallahassee.
Bradford, Tallahassee, Fla.	Randolph & Fenn, Tallahassee.

salt.

R. E. ROSE, State Chemist.

DEPARTMENT OF AGRICULTURE

FOOD AND DRUGS

Samples Taken by State Inspector Under

OFFICIAL FOOD

BUTTER AND BUTTER

Number.	BRAND.	MANUFACTURER, OR WHOLESALE.	REMARKS.
317	Clover Bloom Butter.....	Armour & Co., Tampa, Fla.....	C. M. Weeks, Lak
318	Brookfield Extra Creamery Butter	Swift & Co., Tampa, Fla.....	C. M. Weeks, La
319	Butter .....	J. J. Caylor & Sons, Varnells, Ga.....	J. C. Griffin, Lak
320	Clover Leaf Brand Fancy Creamery Butter.	W. P. Pillans & Co., Lakeland, Fla...	J. C. Griffin, Lak
321	I. D. L. Best Creamery Butter....	Williams & Moorhouse, Tampa, Fla..	W. J. Sutton, La
322	"4 Crown" Butter.....	Elgin Butter Co., of Fla., Jacksonville, Fla.	W. J. Reddick, L
323	Swastika Brand Butter.....	Swift & Co., Tampa, Fla.....	Ball Grocery Co.,
324	Ball's "Cream" Fancy Butter.....	Williams & Moorhouse, Tampa, Fla..	Ball Grocery Co.,
325	S. J. Drawdy's Fox River Fancy Creamery Butter.	Fox River Butter Co., Aurora, Ill....	S. J. Drawdy, Tan
326	Creamery Butter .....	Cudahy Packing Co., South Omaha, Neb.	Cudahy Packing C
327	Mickler's Fifth Avenue Creamery Butter.	Fox River Butter Co., Aurora, Ill....	J. R. Mickler, Tan
328	Butter .....	DeJournett & Co., Calhoun, Ga.....	Crenshaw Bros.,
329	Renovated Butter .....	Swift & Co., Tampa, Fla.....	Ball Grocery Co.,
330	Diamond X Butter.....	J. H. McLaurin & Co., Jacksonville, Fla.	L. P. McCulley,
331	Butter .....	L. K. Riley, Jacksonville, Fla.....	H. H. Hill, Sanfo
332	Meadow-Gold Butter .....	VanDeman-Lewis Co., Jacksonville, Fla.	Sanford Grocery
333	Butter .....	.....	E. VanOrsdall &
334	Monogram Creamery Butter.....	Elgin Butter Co. of Fla., Jacksonville, Fla.	L. G. Lyman, Day
335	Butter .....	E. W. Perry, Hendersonville, N. C...	Gay Brothers, Pa
336	Monogram Creamery Butter.....	Kingan & Co., Jacksonville, Fla.....	Eugene Masters,
337	Pure Jersey Butter.....	Racy Cream Co., Knoxville, Tenn....	W. S. Dorsey &
338	Butternut Butter.....	Armour & Co., Jacksonville, Fla.....	Kelly Brothers, J
339	White Clover Brand Butter.....	Elgin Butter Co., Elgin, Ill.....	Kelly Brothers, J
340	Jersey Brand Fancy Creamery Butter.	The Geo. C. Mansfield Co., Johnson Creek, Wis.	Smith, Richardso
341	Star Brand Creamery Butter.....	Pinney & Geddes, New York, N. Y....	Lewis K. Riley, J
342	"Elgin Clover" Brand Butter.....	The Associated Elgin Creameries, Elgin, Ill.	Consolidated Gr

\*Adulterated and Misbranded; a renovated Butter adulterated with water and salt.



# LABORATORY—DIVISION OF CHEMISTRY.

## AND DRUG SECTION.

Under Section 9, Act Approved June 3, 1907.

FOOD ANALYSIS, 1910.

BUTTER SUBSTITUTES.

A. M. HENRY, Assistant Chemist.

RETAILER.	Water (per cent.)	Casein (per cent.)	Ash (Salt) (per cent.)	Butter Fat (per cent.)	Index of Refraction at 25° C. (Butyro-Refractometer.)	Reichert-Meissel Number.	Color.	Spoon Test.	Remarks.
Lakeland.....	12.82	1.83	2.87	83.39	1.4607	27.73	.....	Foams	Legal.
s, Lakeland.....	14.39	0.96	2.81	81.84	1.4601	26.11	.....	Foams	Legal.
Lakeland.....	14.58	1.72	0.95	82.75	1.4601	25.51	Azo Dye	Foams	Legal.
Lakeland.....	10.50	0.70	2.20	86.60	1.4610	27.71	.....	Foams	Legal.
, Lakeland.....	12.21	1.00	2.10	84.69	1.4612	24.19	.....	Foams	Legal.
ck, Lakeland.....	16.49	1.27	1.23	81.02	1.4601	25.38	.....	Foams	Legal.
Co., Tampa.....	15.00	1.13	3.37	80.50	1.4604	24.65	.....	Foams	Legal.
Co., Tampa.....	13.66	1.01	3.37	81.95	1.4604	24.94	.....	Foams	Legal.
Tampa.....	13.56	1.21	2.76	82.43	1.4612	26.49	.....	Foams	Legal.
ing Co., Tampa.....	10.98	0.85	2.22	85.91	1.4604	24.17	.....	Foams	Legal.
, Tampa.....	11.67	1.40	1.48	85.44	1.4601	29.19	.....	Foams	Legal.
os., Tampa.....	16.21	1.80	4.95	77.04	1.4607	21.84	.....	Sputters	Illegal.
Co., Tampa.....	9.65	1.49	3.92	84.94	1.4604	23.00	.....	Sputters	Legal.
ley, Sanford.....	12.96	0.98	2.77	83.31	1.4612	26.41	.....	Foams	Legal.
Sanford.....	13.58	1.02	2.64	82.76	1.4612	25.21	.....	Foams	Legal.
ery Co., Sanford.....	15.68	0.90	3.17	80.25	1.4602	23.68	.....	Foams	Legal.
l & Co., Daytona.....	10.17	1.07	2.42	86.34	1.4607	28.95	.....	Foams	Legal.
, Daytona.....	5.05	0.60	0.85	93.05	1.4604	28.71	.....	Foams	Legal.
s, Palatka.....	10.81	1.26	1.39	86.54	1.4607	27.51	.....	Foams	Legal.
ters, St. Augustine.....	12.76	0.81	2.18	84.25	1.4614	25.74	.....	Foams	Legal.
y & Co., Jacksonville....	10.87	1.22	1.73	86.18	1.4606	27.02	.....	Foams	Legal.
ers, Jacksonville.....	10.74	0.92	1.43	86.90	1.4612	26.54	.....	Foams	Legal.
ers, Jacksonville.....	11.37	0.76	1.85	86.02	1.4614	24.00	.....	Foams	Legal.
ardson & Conroy, Jack-	16.95	0.90	1.85	80.30	1.4605	26.68	.....	Foams	Legal.
ey, Jacksonville.....	9.00	1.15	1.50	88.35	1.4613	26.38	.....	Foams	Legal.
Grocery Co., Jackson-	9.31	0.89	1.77	88.02	1.4614	24.91	.....	Foams	Legal.

salt.

OFFICIAL FOOD ANALYSIS, 1911  
BUTTER AND BUTTER SUBSTITUTES

Number.	BRAND.	MANUFACTURER, OR WHOLESALE.	RETAILER.
343	Sumner's 4X Creamery Butter...	W. P. Sumner Co., Jacksonville, Fla..	S. S. Averitt, Jacksonville..
344	Strictly Fancy Creamery Crown Brand Butter.	Marx Brothers, Jacksonville.....	W. R. Parnell, Jacksonville..
345	Prize Elgin Butter.....	R. H. Peck, New York, N. Y.....	J. N. King, Fernandina.....
346	Blue Ribbon Brand Superior Butter.	V. Lopez & Co., New York, N. Y.....	J. R. Reed, Fernandina.....
347	Royalton Butter .....	Smith, Richardson & Conroy, Jacksonville, Fla.	George Lewis, Jacksonville..
348	Butter .....	Davis, Richardson & Barnette, Dalton, Ga.	George Wolf, Live Oak.....
349	Blue Grass Butter.....	W. B. Johnson & Co., Jacksonville, Fla.	S. P. Mays, Live Oak.....
350	Goldenrod Brand Pure Creamery Butter.	James Rowland & Co., New York, N. Y.	H. A. Blackburn, Live Oak..
351	Butter .....	DeJournette & Co., Calhoun, Ga....	W. H. Slaughter, Perry.....
352	Butter .....	Quitman Grocery Co., Quitman, Ga..	W. H. Slaughter, Perry.....
353	Butter .....	Stone Produce Co., Dalton, Ga.....	Vereen & Crews, Perry.....
354	Butter .....	Sterling Butter Co., Aurora, Ill.....	S. H. Peacock, Perry.....
355	Peerless Brand Fancy Creamery Butter.	Kingan & Co., Jacksonville, Fla.....	W. E. Dean, Monticello.....
356	Special Creamery Butter.....	R. C. Williams & Co., New York, N. Y.	G. C. McCall, Monticello..
358	Process Butter .....	Armour & Co., Jacksonville, Fla....	O. P. Rhoad, Apalachicola..
359	Extra Bouquet Creamery Butter..	Russell Crego & Son, New York, N. Y.	J. P. Hickey, Apalachicola..
360	Process Butter .....	Swift & Co., Jacksonville, Fla.....	C. H. Meinscher, Quincy....
361	Oleomargarine .....	Smith, Richardson & Conroy, Jacksonville, Fla.	R. C. Stearns, Quincy.....
362	Butter .....	M. H. Johnson, Tallahassee, Fla....	Love & Hearin Co., Quincy..
363	Meadow Brook Strictly Pure Process Butter.	J. H. McLaurin & Co., Jacksonville, Fla.	Brumby & Co., Quincy.....
364	Renovated Butter .....	Swift & Co., Pensacola, Fla.....	Hoyt Bros. & Co., Pensacola.
365	Swift's Premium Oleomargarine..	Swift & Co., Fort Worth, Texas.....	A. McD. Moyer, Pensacola..
366	Four-Leaf Clover Creamery Butter.	Lewis Bros. & Co., New Orleans, La.	Will L. Moyer, Pensacola..
367	Butter .....	Lewis Bear Co., Pensacola, Fla.....	A. H. Jackson, DeFuniak Spr.
368	Butter .....	A. S. Wells, Tallahassee, Fla.....	Randolph & Fenn, Tallahassee.
369	Butter .....	A. P. McCaskill, Tallahassee, Fla....	P. T. Mickler, Tallahassee..
370	Butter .....	H. P. Smith, Tallahassee, Fla.....	VanBrunt & Demilly, Tallahassee.
501	Butter .....	R. Bradford, Tallahassee, Fla.....	Randolph & Fenn, Tallahassee.

\*Adulterated with water and salt.

18, 1910.—Continued.  
 SUBSTITUTES.—Continued.

	Water (per cent.)	Caesln (per cent.)	Ash (Salt) (per cent.)	Butter Fat (per cent.)	Index of Refraction at 25° C. (Butyro-Refractometer.)	Reichert-Meißel Number.	Color.	Spoon Test.	Remarks.
ille.....	13.41	1.13	1.87	83.58	1.4602	28.24	.....	Foams	Legal.
ville.....	16.00	1.08	1.85	81.06	1.4607	28.44	.....	Foams	Legal.
.....	10.25	0.83	2.12	86.80	1.4616	33.99	Azo Dye	Foams	Legal.
.....	26.74	1.28	6.04	65.94	1.4607	25.55	Azo Dye	Foams	*Illegal.
ville.....	11.67	1.04	1.51	85.78	1.4616	25.21	.....	Foams	Legal.
.....	13.42	1.81	2.78	82.08	1.4609	20.02	.....	Foams	Legal.
.....	13.72	0.89	3.26	82.12	1.4612	27.89	.....	Foams	Legal.
Oak.....	8.04	0.76	1.02	90.17	1.4618	22.62	.....	Foams	Legal.
.....	15.51	1.93	5.54	77.00	1.4608	22.52	.....	Foams	*Illegal.
.....	15.32	2.19	1.70	80.80	1.4607	20.69	.....	Foams	Legal.
.....	11.39	2.52	3.04	83.05	1.4607	19.85	.....	Foams	Legal.
.....	10.82	1.49	2.37	85.32	1.4603	28.80	.....	Foams	Legal.
.....	14.35	1.24	4.21	80.20	1.4615	24.05	.....	Foams	Legal.
lo.....	13.51	1.30	1.31	83.88	1.4613	26.57	.....	Foams	Legal.
ola.....	19.87	2.13	4.80	72.20	1.4609	25.35	.....	Sputters	*Illegal.
cola.....	12.45	1.10	2.32	84.13	1.4612	29.18	.....	Foams	Legal.
cy.....	13.83	1.38	3.44	81.34	1.4607	27.30	.....	Sputters	Legal.
.....	10.75	1.69	2.37	84.76	1.4639	2.66	.....	Sputters	Legal.
ncy.....	9.63	1.25	8.57	80.75	1.4603	26.91	.....	Foams	Legal.
.....	13.33	1.78	3.36	81.53	1.4608	25.40	.....	Sputters	Legal.
acola.....	12.42	1.48	3.56	83.04	1.4610	26.13	Azo Dye	Sputters	Legal.
cola.....	8.72	1.00	1.31	88.96	1.4641	5.76	.....	Sputters	Legal.
la.....	13.55	1.05	3.10	82.30	1.4607	27.53	.....	Foams	Legal.
k Sprtugs....	12.16	0.73	3.67	83.44	1.4608	26.37	.....	Foams	Legal.
hassee.....	9.83	0.60	8.38	81.64	1.4612	20.80	.....	Foams	Legal.
ee.....	13.22	1.13	1.82	84.03	1.4607	28.11	.....	Foams	Legal.
allahassee....	16.00	1.70	1.18	81.12	1.4600	22.11	.....	Foams	Legal.
ahassee.....	11.95	1.60	2.90	83.55	1.4598	27.89	.....	Foams	Legal.

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Water (per cent.)	Caesln (per cent.)	Ash (Salt) (per cent.)	Butter Fat (per cent.)	Index of Refraction at 25° C. (Butyro-Refractometer.)	Reichert-Melsel Number.	Color.	Spoon Test.	Remarks.
13.41	1.13	1.87	83.58	1.4602	28.24	.....	Foams	Legal.
16.00	1.08	1.85	81.06	1.4607	28.44	.....	Foams	Legal.
10.25	0.83	2.12	86.80	1.4616	23.99	Azo Dye	Foams	Legal.
26.74	1.28	6.04	65.94	1.4607	25.55	Azo Dye	Foams	*Illegal.
11.67	1.04	1.51	85.78	1.4616	25.21	.....	Foams	Legal.
13.42	1.81	2.78	82.08	1.4609	20.02	.....	Foams	Legal.
13.72	0.89	3.26	82.12	1.4612	27.89	.....	Foams	Legal.
8.04	0.76	1.02	90.17	1.4618	22.62	.....	Foams	Legal.
15.51	1.93	5.54	77.00	1.4608	22.52	.....	Foams	*Illegal.
15.32	2.19	1.70	80.80	1.4607	20.69	.....	Foams	Legal.
11.39	2.52	3.04	83.05	1.4607	19.85	.....	Foams	Legal.
10.82	1.49	2.37	85.32	1.4603	28.80	.....	Foams	Legal.
14.35	1.24	4.21	80.20	1.4615	24.05	.....	Foams	Legal.
13.51	1.30	1.31	83.88	1.4613	26.57	.....	Foams	Legal.
19.87	2.13	4.80	72.20	1.4609	25.35	.....	Sputters	*Illegal.
12.45	1.10	2.32	84.13	1.4612	29.18	.....	Foams	Legal.
13.83	1.38	3.44	81.34	1.4607	27.30	.....	Sputters	Legal.
10.75	1.69	2.87	84.76	1.4639	2.66	.....	Sputters	Legal.
9.63	1.25	8.57	80.75	1.4603	26.91	.....	Foams	Legal.
13.33	1.78	3.36	81.53	1.4608	25.40	.....	Sputters	Legal.
12.42	1.48	3.56	83.04	1.4610	26.13	Azo Dye	Sputters	Legal.
8.72	1.00	1.31	88.96	1.4641	5.76	.....	Sputters	Legal.
13.55	1.05	3.10	82.30	1.4607	27.53	.....	Foams	Legal.
12.16	0.73	3.67	83.44	1.4608	26.37	.....	Foams	Legal.
9.83	0.60	8.38	81.64	1.4612	20.80	.....	Foams	Legal.
13.22	1.13	1.62	84.03	1.4607	28.11	.....	Foams	Legal.
16.00	1.70	1.18	81.12	1.4600	22.11	.....	Foams	Legal.
11.95	1.60	2.90	83.55	1.4598	27.89	.....	Foams	Legal.

# DEPARTMENT OF AGRICULTURE—DIVISION OF CHEMISTRY.

R. E. ROSE, State Chemist.

FOOD AND DRUG SECTION.

A. M. HENRY, Assistant Chemist.

Samples Taken by Purchaser Under Section 10, Act Approved June 7, 1909.

SPECIAL DRUG ANALYSES, 1910.

MISCELLANEOUS.

No.	SUBSTANCE.	RESULTS OF EXAMINATION.	FROM.
313	Powder from Pocket of a Burglar	Morphine Sulfate .....	A. McCarty, Tallahassee.
315	Skin Lotion, Mrs. L. Mendoza..	A mixture of zinc oxide and aluminum hydroxid in a perfumed water.	F. Alzman, Tampa.
333	South Florida Blood Purifier, H. S. Silas Medical Co., Kissimmee, Fla.	Specific gravity at 15° C.....1.00437 Alcohol (per cent by vol.).....3.80 Total solids (per cent).....3.78 Ash (per cent).....0.25 A mixture of sirup of ferrous iodide, fluid extract of stillingia, a sarsaparilla preparation, and water.	J. W. Luter, Kissimmee.

**DEPARTMENT OF AGRICULTURE—DIVISION  
OF CHEMISTRY.**

**R. E. ROSE**, State Chemist.    **A. M. HENRY**, Asst. Chemist.

**FOOD AND DRUG SECTION.**

Samples Taken by State Inspector Under Section 9, Act  
Approved June 3, 1907.

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**OFFICIAL DRUGS ANALYSES, 1910.**

Standards for drugs are, by the Pure Food and Drugs Law, based on the requirements of the United States Pharmacopœia and the National Formulary.

What the United States Pharmacopœia and National Formulary are:

For the information of those who are not physicians nor pharmacists, it should be explained that, as will be apparent on a moment's thought, it was, quite early in the systematizing of medicine, found necessary to have standards of strength for the drugs administered, and convenient to have, likewise, a list of drugs which had approved themselves by their usefulness under long-continued trial. These considerations have impelled the people of every civilized country to adopt such a list of official drugs, with standards of purity and strength therefor. These lists are supposed to contain practically all such drugs that a physician may in all diseases be called on to prescribe, or the pharmacist to use, and hence the comprehensive title, Pharmacopœia, is bestowed upon it. In some countries the publication of the Pharmacopœia is under the direct control of the Government; in the United States, it has for about a hundred years been published by a body composed of representatives of the medical, pharmaceutical and allied professions. This body revises the book every ten years, meetings being held decennially for that purpose, the last one being in May of the current year. This book, so published, is known as the United States Pharmacopœia,

and has, therefore, for a hundred years been the standard reference book for drugs in the United States.

The National Formulary is published in very much the same way by the American Pharmaceutical Association, and covers a slightly different field. It is not so old as the Pharmacopœia.

Now, the Florida Pure Food and Drug Laws, as well as the national food and drug act, and that of most the other States, has made the standards of these two books legal, and every pharmacist in the land can know what the law requires that any drug shall be. There can, therefore, be no excuse of ignorance for failure to comply with the law.

In so far as the number of those in good health is vastly greater than those in sickness, the adulteration of food reaches almost entirely the healthy. The sophistication of drugs, however, reaches those utterly unable to help themselves; life itself may, and often does, depend upon the purity and strength of the medicine administered. The obligation upon the pharmacist, not only to do the very best he knows, but to know his work thoroughly, is correspondingly great, and he should not let the commercial feature of his work in any way obscure this higher side of his profession. The public, likewise, as always, owes a duty to itself. High-grade work and high-grade drugs are incompatible with heating the druggist's prices down to the very lowest notch, and the public should patronize the reliable, rather than the cheap man.

The language of the Florida law, as to purity, provides that a drug shall be deemed to be adulterated if it "differs from the standard of strength, quality or purity, as determined by the test laid down in the United States Pharmacopœia or National Formulary," etc. A drug, therefore, which is much above the standard in strength may as truly be adulterated as one much below that strength, and is almost certain to be more dangerous. A limit of 10 per cent. variation from the standard has been tentatively adopted for drugs. All strengths are given and are also calculated in percentages of the strength required by the standards.

OFFICIAL DRUG ANALYSES, 1910.—Continued.

JAMAICA GINGER.

The extract or essence of Jamaica Ginger is neither a preparation of the U. S. Pharmacopoeia nor National Formulary, consequently there has been no standard prescribed for it. The Pure Food and Drugs Law requires the statement on the label as to the percentage of alcohol.

No.	LABEL.	DRUGGIST or RETAILER	Specific Gravity at 15° C.	Alcohol Per Cent by Volume.	Total Solids Per Cent.	Ash Per Cent.	REMARKS.
376	Rexall Jamaica Ginger—63% alcohol. United Drug Co., Boston, Mass.	Wilson Drug Co., Bartow.	0.90350	64.40	1.41	0.138	Legal.
373	Concentrated Essence of Jamaica Ginger—49.5% alcohol. Alan-Pfeiffer Chem. Co.	Harry Cross, Arcadia.	0.93400	40.60	0.75	0.047	Legal.
384	Ess. Jamaica Ginger.	Tampa Drug Co., Tampa.	0.82435	92.80	1.33	0.024	Illegal—misbranded. No alcohol statement.
395	Ess. Jamaica Ginger.	Thomas' Pharmacy, Bra-dentown.	0.82130	93.65	0.76	0.024	Illegal—misbranded. No alcohol statement.
449	Ext. Jamaica Ginger.	Hardee-Smith Co., Tallahassee.	0.91700	58.40	1.17	0.147	Illegal—misbranded. No alcohol statement.



450	Essence of Jamaica Ginger—93% alcohol.	Tallahassee Drug Co., Tallahassee.	0.82500	92.60	0.98	0.024	Legal.
452	Extract Jamaica Ginger—93% alcohol.	The Holmes Drug Co., Tallahassee.	0.82395	92.90	0.80	trace	Legal.
453	Concentrated Essence Jamaica Ginger.	Dr. A. S. Jerry, Tallahassee.	0.98186	14.30	1.62	0.188	Illegal—misbranded. No alcohol statement.

OFFICIAL DRUG ANALYSES, 1910.—Continued.

LAUDANUM.  
(TINCTURA OPII)

The Pharmacopoeia requires that Laudanum should contain in each 100 cubic centimeters of the preparation 10 grama (in each fluid ounce, 45.6 grains) of opium. The Pure Food and Drugs Law requires the quantity or proportion of opium and the percentage of alcohol to be stated on the label. If any artificial coloring or flavoring is used the fact should be conspicuously stated on the label.

No.	LABEL.	DRUGGIST OR RETAILER.	REMARKS.
372	Laudanum.	Winkler's Drug Store, Fort Myera.	Illegal—misbranded. No opium and alcohol statement.
374	Laudanum.	The Corner Drug Store, Bartow.	Illegal—misbranded. No opium and alcohol statement.
380	Laudanum.	Tampa Drug Co., Tampa.	Illegal—misbranded. No opium and alcohol statement.
385	Laudanum.	The Morton Drug Co., Tampa.	Illegal—misbranded. No opium and alcohol statement.
388	Laudanum—45.6 gr. opium to oz., 48% alcohol.	The Hutchinson-Cotter Drug Co., Tampa.	Legal.
404	Laudanum—30 gr. opium to 1 oz., 40% alcohol. The Groover- Stewart Drug Co., Jacksonville, Fla.	Dunnellon Pharmacy, Dunnellon.	Legal.

412	Laudanum—30 gr. opium to fl. oz., 40% alcohol.	The Groover-Stewart Drug Co., Jacksonville.	Legal.
416	Laudanum—9 gr. opium to fl. oz., 45% alcohol.	Southern Drug Manufacturing Co., Jacksonville.	Legal.
421	Laudanum—18.7 gr. opium to fl. oz., 40% alcohol, colored.	United Specialty Co., Jacksonville.	Legal.
431	Laudanum. Grell Bros. Co., Mont- gomery, Ala.	Patrick Grocery Co., Graceville.	Illegal—misbranded. No opium and alcohol statement.
436	Laudanum.	The R. Lewis Co., Pensacola.	Illegal—misbranded. No opium and alcohol statement.
440	Laudanum.	The Crystal Pharmacy, Pensacola.	Illegal—misbranded. No opium and alcohol statement.
443	Laudanum.	W. A. D'Alemherte, Pensacola.	Illegal—misbranded. No opium and alcohol statement.

OFFICIAL DRUG ANALYSES, 1910.—Continued.

PAREGORIC.  
(TINCTURA OPII CAMPHGRTA.)

The Pharmacopoeia requires that Paregoric should contain 0.4 gram opium to each 100 cubic centimeters (1.32 grains to each fluid ounce) of the preparation and 47.5 per cent. of alcohol as well as benzoic acid, camphor, glycerin, and oil of anise. Under the Pure Food and Drugs Law the quantity or proportion of opium and the percentage of alcohol must be stated on the label in CAPITAL LETTERS not smaller than 8-point Brevier. If any artificial coloring or flavoring is used the fact must be stated conspicuously on the label.

No.	LABEL.	DRUGGIST or RETAILER	COLOR.	REMARKS.
375	Paregoric—2 gr. opium to oz., 46% alcohol.	Gary's Pharmacy, Bartow.	.....	Legal.
379	Paregoric.	Tampa Drug Co., Tampa.	.....	Illegal—misbranded. No opium and alcohol state- ment.
386	Paregoric—2 gr. opium to fl. oz., 46% alcohol.	Cotter's Drug Store, Tam- pa.	.....	Legal.
391	Paregoric.	Taylor Drug Store, Tampa.	.....	Illegal—misbranded. No opium and alcohol state- ment.
397	Paregoric.	Stansfield & Co., Braden- town.	.....	Illegal—misbranded. No opium and alcohol state- ment.
406	Paregoric—1.9 gr. opium to fl. oz., 40% alcohol, The Groover-Stew- Drug Co., Jacksonville, Fla.	Mrs. Mary Williams-Allan, Red Saunders. Crystal River.	.....	Illegal—misbranded. No statement of artificial color.

408	Paregoric—2 gr. opium to fl. oz., 42% alcohol. McCormick & Co., Baltimore, Md.	J. H. Wells, Archer.	.....	Legal.
411	Paregoric—1.9 gr. opium to fl. oz., 40% alcohol.	The Groover-Stewart Drug Co., Jacksonville.	Red Saunders.	Illegal—misbranded. No Statement of use of artificial color.
417	Paregoric—0.75 gr. opium to fl. oz., 45% alcohol.	Southern Drug Manufacturing Co., Jacksonville.	.....	Legal.
422	Paregoric—1.5 gr. opium to fl. oz., 45% alcohol, colored.	United Specialty Co., Jacksonville.	Caramel.	Legal.
429	Paregoric, D. G. Smith, Madison, Fla.	G. W. Rutherford, Madison.	.....	Illegal—misbranded. No opium and alcohol statement.
434	Paregoric.	The R. Lewis Co., Pensacola.	.....	Illegal—misbranded. No opium and alcohol statement.
438	Paregoric.	The Crystal Pharmacy, Pensacola.	Red Saunders.	Illegal—misbranded. No opium and alcohol statement. No statement of use of artificial color.
442	Paregoric—Artificially colored.	W. A. D'Alemberte, Pensacola.	Red Saunders.	Illegal—misbranded. No opium and alcohol statement.

OFFICIAL DRUG ANALYSES, 1910—PAREGORIC.—Continued.

No.	LABEL.	DRUGGIST or RETAILER	COLOR.	REMARKS.
447	Paregoric—0.4 of 1% of opium., 50% alcohol. The Frank Tea & Spice Co., Cincinnati, O.	Will L. Moyer, Pensacola.	.....	Legal.
448	Paregoric—1.77 gr. opium per oz., 40% alcohol. The Lewis Bear Drug Co., Pensacola, Fla.	Will L. Moyer, Pensacola.	.....	Legal.

OFFICIAL DRUG ANALYSES, 1910—Continued.  
POTASSIUM IODIDE.

No.	Label.	Manufacturer.	Druggist.	Results.	Remarks.
485	Potassium Iodide..	Drug Merchants of America, 108 Fulton St., N. Y.	Taylor's Drug Store, Tampa.	Sample fulfills requirements of the U. S. Pharmacopoeia	Legal.

OFFICIAL DRUG ANALYSES, 1910.—Continued.

SPIRIT OF CAMPHOR.  
(SPIRITUS CAMPHORAE.)

The Pharmacopoeia requires that Spirit of Camphor should contain in each 100 cubic centimeters of the preparation 10 grams (in each fluid ounce 45.6 grains) of gum camphor dissolved in 95% alcohol. There is no reasonable cause for failure with this preparation, for it is easily made of materials that are seldom deficient in purity.

No.	LABEL.	DRUGGIST, OR RETAILER.	CAMPHOR.		REMARKS.
			Grams per 100 C. C.	Per Cent U. S. P. Strength	
373	Spirits of Camphor.....	Bartow Drug Co., Bartow.....	10.26	103	Illegal—misbranded. No alcohol statement.
382	Spirits Camphor .....	Tampa Drug Co., Tampa.....	8.33	83	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in camphor.
389	Spirits of Camphor.....	W. S. Oppenheimer, Tampa...	6.96	70	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in camphor.
393	Spts. Camphor—86% alcohol.....	Leon Hale, Tampa.....	8.64	86	Illegal—adulterated. Below standard in camphor.
400	Spirita Camphor .....	Economical Drug Store, Tampa	9.92	99	Illegal—misbranded. No alcohol statement.



407	Reliable Brand Spts. Camphor—85% alcohol. McCormick & Co., Baltimore, Md.	J. E. Willis, Archer.....	10.42	104	Legal.
410	Spirits Camphor—75% alcohol. Southern Drug Mfg. Co., Jacksonville, Fla.	N. Schlemmer & Son, Cedar Keys.	4.46	45	Illegal — adulterated. Below standard in camphor.
413	Spts. Camphor—65% alcohol. Groover-Stewart Drug Co., Jacksonville, Fla.	Groover-Stewart Drug Co., Jacksonville.	8.13	81	Illegal — adulterated. Below standard in camphor.
419	Spirits Camphor—75% alcohol...	Southern Drug Mfg. Co., Jacksonville.	4.53	46	Illegal — adulterated. Below standard in camphor.
425	Spirits Camphor—75% alcohol. 37.5 grains camphor to fl. oz.	United Grocery Grocery Co., Jacksonville.	6.81	68	Illegal—misbranded. Incorrect camphor statement. Adulterated. Below stated amount of camphor.
430	Red Cross Spts. Camphor—75% alcohol. Interstate Chemical Co., Baltimore, Md.	F. M. Brunsby, Quincy.....	8.04	80	Illegal — adulterated. Below standard in camphor.
432	Spirits Camphor .....	The R. Lewis Co., Pensacola..	8.18	82	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in camphor.
439	Spirits of Camphor.....	The Crystal Pharmacy, Pensacola.	10.22	102	Illegal—misbranded. No alcohol statement.
444	Spirits Camphor.....	W. A. D'Alemberts, Pensacola.	10.00	100	Illegal—misbranded. No alcohol statement.

**SPIRIT OF NITROUS ETHER.**  
(SWEET SPIRITS OF NITRE)  
(SPIRITUS AETHERIS NITROSI)

When freshly prepared Spirit of Nitrous Ether should contain 4% of Ethyl Nitrite and 89.93% of alcohol by volume and be free from aldehyde to comply with the requirements of the U. S. Pharmacopoeia. When Spirit of Nitrous Ether is kept in small, dark colored bottles away from light and heat; it can be kept for months, or even years, without decomposing. The addition of water, or the use of a weaker alcohol in the preparation, causes the ethyl nitrite to decompose on standing. Consequently Spirit of Nitrous Ether that contains less alcohol than the Pharmacopoeial standard or 89.93% invariably show a large deficiency from the standard of 4% of ethyl nitrite. The Pure Food and Drugs Law requires the statement of the percentage of alcohol and ethyl nitrite on the label.

No.	LABEL.	DRUGGIST or RETAILER	ETHYL NITRITE.		Specific Gravity. (at 20° C.)	ALCOHOL Per Cent by Volume.	ALDEHYDE.	REMARKS.
			Per Cent.	Per Cent U. S. P. Strength.				
371	Sweet Spts. Nitre— 17.5 gr. ethyl nitrite in oz., 92% alcohol.	Hunter's Drug Store, Fort Myers.	2.92	73	0.8170	93.03	Abs.	Illegal—Adulterated. Below standard in ethyl nitrite.
383	Spts. Ether Nitrous, U. S. P. (Swt. Spirits of Nitre.)	Tampa Drug Co., Tampa.	2.82	71	0.8155	93.46	Abs.	Illegal—misbranded. No alcohol and ethyl nitrite statement. Adulterated. Below standard in ethyl nitrite.

390	Sweet Spirits of Nitre.	Court Square Pharmacy, Tampa.	2.00	50	0.8173	92.96	Abs.	Illegal—misbranded. No alcohol and ethyl nitrite statement. Adulterated. Below standard in ethyl nitrite.
394	Sweet Spts. Nitre.	Thomas' Pharmacy, Bradentown.	3.23	81	0.8160	93.26	Abs.	Illegal—misbranded. No alcohol and ethyl nitrite statement. Adulterated. Below standard in ethyl nitrite.
396	Sweet Spirits of Nitre.	Stanafield & Co., Bradentown.	2.91	73	0.8148	93.58	Abs.	Illegal—misbranded. No alcohol and ethyl nitrite statement. Adulterated. Below standard in ethyl nitrite.
405	Sweet Spirits Nitre—4% Ethyl Nitrite, 75% alcohol. The Groover - Stewart Drug Co., Jacksonville, Fla.	Dunnellon Pharmacy, Dunnellon.	1.25	31	0.8840	70.00	Abs.	Illegal—adulterated. Below standard in ethyl nitrite.
414	Sweet Spirits Nitre—4% Ethyl Nitrite, 75% alcohol.	The Groover-Stewart Drug Co., Jacksonville.	0.88	22	0.8850	69.60	Pres.	Illegal—misbranded. No statement of aldehyde. Adulterated. Below standard in ethyl nitrite and contains aldehyde.

OFFICIAL DRUG ANALYSES, 1910, SPIRIT OF NITROUS ETHER—Continued.

No.	LABEL	DRUGGIST or RETAILER	ETHYL NITRITE.		Specific Gravity (at 20° C.)	ALCOHOL Per Cent by Volume.	ALDEHYDE.	REMARKS.
			Per Cent.	Per Cent U. S. P. Strength.				
420	Sweet Spts. Nitre— 4% Ethyl Nitrite, 75% alcohol.	Southern Drug Mfg. Co., Jacksonville.	1.50	38	0.8670	76.47	Pres.	Illegal—misbranded. No statement of aldehyde. Adulterated. Below standard in ethyl nitrite and contains aldehyde.
423	Sweet Spirits Nitre— 50% alcohol.	United Specialty Co., Jack- sonville.	0.03	1	0.9308	49.15	Abs.	Illegal—misbranded. No ethyl nitrite statement. Adulterated. Below standard in ethyl nitrite.
433	Spirits Nitre.	The R. Lewis Co., Pensa- cola.	1.61	40	0.8155	93.40	Abs.	Illegal—misbranded. No alcohol and ethyl nitrite statement. Adulterated. Below standard in ethyl nitrite.

441	Sweet Spirits of Nitre.	The Crystal Pharmacy, Pensacola.	1.64	41	0.8190	92.42	Abs.	Illegal—misbranded. No ethyl nitrite statement. Adulterated. Below standard in ethyl nitrite.
446	Sweet Sprits Nitre.	W. A. D'Alemberte, Pen- sacola.	4.10	102	0.8158	93.33	Abs.	Illegal—misbranded. No alcohol and ethyl nitrite statement.
451	Sweet Spirits Nitre.	The Tallahassee Drug Co., Tallahassee.	4.81	120	0.8193	92.40	Abs.	Illegal—misbranded. No alcohol and ethyl nitrite statement. Adulterated. Varies from standard for ethyl nitrite.

OFFICIAL DRUG ANALYSES, 1910.—Continued.

TINCTURE OF IODINE.

(TINCTURA IODI.)

The Pharmacopoeia requires that Tincture of Iodine should contain in each 100 cubic centimeters of the preparation 6.86 grams (in each fluid ounce 31.3 grains) of metallic iodine, and 5 grams (22.8 grains per fluid ounce) of potassium iodide dissolved in 95% alcohol. The latter was made obligatory by the last (eight) revision of the United States Pharmacopoeia, so that the careless or ignorant druggist may not overlook this requirement. The percentage of alcohol is required to be stated on the label by the Pure Food and Drugs Law.

No.	LABEL.	DRUGGIST or RETAILER	IODINE.		POTASSIUM IODIDE.		REMARKS.
			Grams per 100 c. c.	Per Cent U. S. P. Strength.	Grams per 100 c. c.	Per Cent U. S. P. Strength.	
377	Tr. Iodine.	Jake Wey, Arcadia.	7.48	109	4.13	83	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in potassium iodide.
381	Tr. Iodine.	Tampa Drug Co., Tampa.	4.20	61	Absent	0	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in iodine and potassium iodide.
287	Tinct. Iodine—94.9% alcohol.	Hutchinson-Cotter Drug Co., Tampa.	5.53	81	3.46	69	Illegal—adulterated. Below standard in iodine and potassium iodide.

392	Tinct. Iodine.	Taylor's Drug Store, Tampa.	5.39	79	3.01	60	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in iodine and potassium iodide.
398	Tr. Iodine.	Budger Pharmacy, Sarasota.	7.14	104	4.89	88	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in potassium iodide.
399	Tinct. Iodine.	Economical Drug Store, Tampa.	5.95	87	Absent	0	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in iodine and potassium iodide.
403	Tinct. Iodine. Southern Drug Mfg. Co., Jacksonville, Fla.	J. E. Smith, Inverness.	1.50	22	1.42	28	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in iodine and potassium iodide.
409	Tinct. Iodine. Southern Drug Mfg. Co., Jacksonville, Fla.	N. Schlemmer & Son, Cedar Keys.	1.98	29	2.09	42	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in iodine and potassium iodide.
416	Tinct. Iodine.	The Groover-Stewart Drug Co., Jacksonville.	6.79	99	4.35	87	Illegal—misbranded. No alcohol statement. Below standard in potassium iodide.
418	Tinct. Iodine—75% alcohol.	Southern Drug Mfg. Co., Jacksonville.	8.60	125	1.65	38	Illegal—Adulterated. Above standard in iodine and below standard in potassium iodide.
424	Tinct. Iodine—22.5 gr. Iodine to fl. oz., 85% alcohol.	United Specialty Co., Jacksonville.	3.79	55	0.75	15	Illegal—adulterated. Below stated amount of iodine and below standard in potassium iodide.

OFFICIAL DRUG ANALYSES, 1910—TINCTURE OF IODINE.—Continued.

No.	LABEL.	DRUGGIST or RETAILER	IODINE.		POTASSIUM IODIDE.		REMARKS.
			Grams per 100 c. c.	Per Cent U. S. P. Strength.	Grams per 100 c. c.	Per Cent U. S. P. Strength.	
435	Tincture iodine.	The R. Lewis Co., Pensacola.	5.80	85	0.68	14	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in iodine and potassium iodide.
437	Tincture iodine.	The Crystal Pharmacy, Pensacola.	6.05	88	3.87	73	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in iodine and potassium iodide.
445	Tincture iodine.	W. A. D'Alemberte, Pensacola.	6.29	92	4.75	95	Illegal—misbranded. No alcohol statement.



OFFICIAL DRUG ANALYSES, 1910.—Continued.

No.	LABEL.	DRUGGIST or RETAILER	IODINE.		POTASSIUM IODINE.		REMARKS.
			Grams per 100 c. c.	Per Cent U. S. P. Strength.	Grams per 100 c. c.	Per Cent U. S. P. Strength.	
454	Tinct. Iodine—94.9% alcohol.	F. P. May, Quincy.....	6.34	92	4.75	94	Legal.
455	Tinct. Iodine.....	The Crystal Pharmacy, Pensacola.	6.04	88	4.54	91	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in Iodine.
456	Tinct. Iodine—96% alcohol.	W. A. D'Alemberte, Pensacola.	7.25	106	4.85	97	Legal.
457	Tinct. Iodine—94.9% alcohol.	Hannah's Pharmacy, Pensacola.	6.62	97	4.62	92	Legal.
460	Tinct. Iodine—90% alcohol.	Bonifay Drug Co., Bonifay.	10.25	150	5.94	119	Illegal—adulterated. Above standard in Iodine and potassium iodide.
461	Tr. Iodine—94% alcohol.	The City Drug Store, Chipley.	6.91	101	4.58	92	Legal.

OFFICIAL DRUG ANALYSES, 1910—Continued.

No.	LABEL.	DRUGGIST or RETAILER	IODINE.		POTASSIUM IODIDE.		REMARKS.
			Grams per 100 c. c.	Per Cent U. S. P. Strength.	Grams per 100 c. c.	Per Cent U. S. P. Strength.	
462	Tinct. Iodine—94.9% alcohol.	City Drug Store, Cottondale.	8.02	130	4.74	95	Illegal—adulterated. Above standard in iodine.
463	Tr. Iodine—94% alcohol. National Drug Co., Philadelphia.	City Drug Store, Blountstown.	6.08	89	1.65	33	Illegal—adulterated. Below standard in iodine and potassium iodide.
464	Tr. Iodine—94% alcohol.	Crystal Pharmacy, Blountstown.	6.70	98	4.90	98	Legal.
465	Tr. Iodine—94% alcohol.	Smith's Drug Store, Marlanna.	5.88	86	2.01	40	Illegal—adulterated. Below standard in iodine and potassium iodide.
466	Tincture of Iodine—90% alcohol.	Dr. Theop. West, Marlanna.	7.06	103	5.22	104	Legal.
467	Tr. Iodine—94.9% alcohol.	Wm. W. Pooser, Apalachicola.	7.21	105	4.82	96	Legal.

468	Tinct. Iodine.....	Wm. A. W. Simmons, Monticello.	4.84	71	Absent	0	Illegal—misbranded. No alcohol statement. Adulterated. Below standard in iodine and potassium iodide.
469	Tinct. Iodine—94% alcohol.	B. W. Johnson & Son, Monticello.	8.01	117	6.35	137	Illegal—adulterated. Above standard in iodine and potassium iodide.
470	Tinct. Iodine—96% alcohol.	Madison Drug Co., Madison.	4.05	59	Absent	0	Illegal—adulterated. Below standard in iodine and potassium iodide.
471	Tr. Iodine—94.9% alcohol.	Suwannee Drug Co., Live Oak.	6.65	97	2.35	47	Illegal—adulterated. Below standard in potassium iodide.
472	Tr. Iodine—94.9% alcohol.	Barclay & Groover, Live Oak.	6.87	100	0.84	17	Illegal—adulterated. Below standard in potassium iodide.
473	Tinct. Iodine—94% alcohol.	Young's Drug Store, Lake City.	5.75	84	Absent	0	Illegal—adulterated. Below standard in iodine and potassium iodide.
474	Tinct. Iodine—94.9% alcohol.	M. B. Church, Daytona...	5.34	78	3.05	61	Illegal—adulterated. Below standard in iodine and potassium iodide.
476	Tinct. Iodine—94.9% alcohol.	St. Lucie Drug Co., Fort Pierce.	6.00	88	4.71	94	Illegal—adulterated. Below standard in iodine.
478	Tinct. Iodine—94.9% alcohol.	West Palm Beach Drug Co., West Palm Beach.	8.06	117	4.51	90	Illegal—adulterated. Above standard in iodine and below standard in potassium iodide.
479	Tr. Iodine—94.9% alcohol.	Merrill's Drug Store, West Palm Beach.	6.90	101	4.92	98	Legal.

OFFICIAL DRUG ANALYSES, 1910—Continued.

No.	LABEL.	DRUGGIST or RETAILER	IODINE.		POTASSIUM IODIDE.		REMARKS.
			Grams per 100 c. c.	Per Cent U. S. P. Strength.	Grams per 100 c. c.	Per Cent U. S. P. Strength.	
480	Tincture of Iodine—94% alcohol.	Broadwell & Moore, West Palm Beach.	5.61	82	Absent	0	Illegal—adulterated. Below standard in iodine and potassium iodide.
481	Tinct. Iodine—94% alcohol.	DeSoto Drug Co., Punta Gorda.	6.38	93	Absent	0	Illegal—adulterated. Below standard in potassium iodide.
482	Tinct. Iodine—94.9% alcohol.	Cotter's Drug Store, Tampa.	7.09	103	Absent	0	Illegal—adulterated. Below standard in potassium iodide.
483	Tincture of Iodine—94% alcohol.	Leon Hale, Tampa.	6.16	90	4.17	83	Illegal—Adulterated. Below standard in iodine and potassium iodide.
484	Tinct. Iodine—94.9% alcohol.	Taylor's Drug Store, Tampa.	7.60	111	5.28	106	Illegal—adulterated. Above standard in iodine.
486	Tinct. Iodine—94.9% alcohol.	B. P. Matheson, Fort Myers.	6.91	101	1.16	23	Illegal—adulterated. Below standard in potassium iodide.

487	Tr. Iodine—94% alcohol.	Jake Wey, Arcadia.	7.58	116	5.95	119	Illegal—adulterated. Above standard in iodine and potassium iodide.
488	Tinct. Iodine—94.9% alcohol.	The Wilson Drug Co., Bartow.	6.50	95	3.41	68	Illegal—adulterated. Below standard in potassium iodide.
489	Tinct. Iodine—94.9% alcohol.	The Corner Drug Store, Bartow.	6.35	93	5.22	104	Legal.
490	Tinct. Iodine—94.9% alcohol.	Henley & Henley, Lakeland.	3.57	52	Absent	0	Illegal—adulterated. Below standard in iodine and potassium iodide.
491	Tinct. Iodine—94.9% alcohol.	Central Pharmacy, Plant City.	8.76	129	Absent	0	Illegal—adulterated. Above standard in iodine and below standard in potassium iodide.
492	Tinct. Iodine—94.9% alcohol.	Plant City Pharmacy, Plant City.	4.05	59	1.85	37	Illegal—adulterated. Below standard in iodine and potassium iodide.
493	Tinct. Iodine—94.9% alcohol.	Bradentown Drug Co., Bradentown.	7.51	110	5.73	115	Illegal—adulterated. Above standard in iodine and potassium iodide.
494	Tinct. Iodine—94.9% alcohol.	Red Cross Pharmacy, St. Petersburg.	6.86	100	4.88	98	Legal.
495	Tr. Iodine—90% alcohol.	Dunnellon Pharmacy, Dunnellon.	5.61	82	3.25	65	Illegal—adulterated. Below standard in iodine and potassium iodide.
496	Tinct. Iodine—94.9% alcohol.	J. W. McCollum & Co., Gainesville.	6.98	102	5.70	114	Illegal—adulterated. Above standard in potassium iodide.

OFFICIAL DRUG ANALYSES, 1910.—Continued.

No.	LABEL.	DRUGGIST or RETAILER	IODIDE.		POTASSIUM IODINE.		REMARKS.
			Grams per 100 c. c.	Per Cent U. S. P. Strength.	Grams per 100 c. c.	Per Cent U. S. P. Strength.	
497	Tinct. Iodine—94.9% alcohol.	A. J. Vidal, M. D., Gainesville.	7.98	116	4.84	97	Illegal—adulterated. Above standard in iodine.
498	Tinct. Iodine—94.9% alcohol.	The Heffley Drug Co., Jacksonville.	6.19	90	1.23	25	Illegal—adulterated. Below standard in iodine and potassium iodide.
500	Tinct. Iodine—94.9 % alcohol.	Seminole Pharmacy, Jacksonville.	4.98	73.	4.03	81	Illegal—adulterated. Below standard in iodine and potassium iodide.

# MISCELLANEOUS ANALYSES AND EXAMINATIONS, 1910.

## WATER SAMPLES.

- M. 1351.—Water from H. F. Quackenboss, Enterprise.  
Artesian water from 95-foot well at Enterprise Public School.  
Total dissolved solids (parts per 1,000,000) ..... 250
- M. 1352.—Water from W. H. Towles, Fort Myers.  
Pond water.  
Total dissolved solids (parts per 1,000,000) ..... 2,153
- M. 1362.—Water from Richard G. Johnson, Tallahassee.  
Well water.  
Total dissolved solids (parts per 1,000,000) ..... 135
- M. 1366.—Water from C. C. Hamblin, Tampa.  
Spring water.  
Total dissolved solids (parts per 1,000,000) ..... 243
- M. 1368.—Water from M. O. Feagin, Eagle Lake.  
Total dissolved solids (parts per 1,000,000) ..... 180
- M. 1369.—Water from George A. Main, Daytona.  
Artesian water from 250-foot city well of Daytona.  
Total dissolved solids (parts per 1,000,000) ..... 1,003

- M. 1370.—Water from M. Jeffries, Cora.  
 Total dissolved solids (parts per 1,000,000) ..... 172
- M. 1383.—Water from Stearns & Culver Lumber Company, Bagdad.  
 Total dissolved solids (parts per 1,000,000) ..... 35  
 Volatile solids (parts per 1,000,000).... 32  


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 Non-volatile solids (parts per 1,000,000) 3
- M. 1384.—Water from H. A. Hampton, Marianna.  
 "No. 1."  
 Total dissolved solids (parts per 1,000,000) ..... 154  
 Water also contains hydrogen sulfide.
- M. 1385.—Water from H. A. Hampton, Marianna.  
 "No. 2."  
 Total dissolved solids (parts per 1,000,000) ..... 413
- M. 1386.—Water from T. J. Griffin, Hawthorne.  
 Water from 32-foot pump.  
 Total dissolved solids (parts per 1,000,000) ..... 86
- M. 1387.—Water from Bunnell Development Company,  
 Bunnell. "No. 1."  
 Total dissolved solids (parts per 1,000,000) ..... 1,528  
 Water also contains hydrogen sulfide.
- M. 1388.—Water from Bunnell Development Company,  
 Bunnell. "No. 2."  
 Total dissolved solids (parts per 1,000,000) ..... 100



- M. 1389.—Water from G. P. Walker, Belleair.  
 Artesian water from 189-foot well.  
 Total dissolved solids (parts per 1,000,000) ..... 205
- M. 1390.—Water from T. J. Sheridan, Clearwater.  
 Water from Wallace Spring.  
 Total dissolved solids (parts per 1,000,000) ..... 69
- M. 1397.—Water from T. J. Sheridan, Clearwater.  
 Water from Frazer Well.  
 Total dissolved solids (parts per 1,000,000) ..... 394  
 Water also contains hydrogen sulfide.
- M. 1398.—Water from T. J. Sheridan, Clearwater.  
 Water from Engman Spring.  
 Total dissolved solids (parts per 1,000,000) ..... 483
- M. 1399.—Water from T. J. Sheridan, Clearwater.  
 Water from Eldridge Well.  
 Total dissolved solids (parts per 1,000,000) ..... 270
- M. 1400.—Water from well of Wilson Cypress Company, seven miles south of Palatka, for State Geological Survey.  
 (Milligrams per Liter.)
- |  |     |
|--|-----|
| Silica ( $\text{SiO}_2$ )              | 13  |
| Chlorine (Cl)                          | 234 |
| Sulfate radicle ( $\text{SO}_4$ )      | 49  |
| Phosphate radicle ( $\text{PO}_4$ )    | 0   |
| Carbonate radicle ( $\text{CO}_3$ )    | 0   |
| Bicarbonate radicle ( $\text{HCO}_3$ ) | 156 |
| Sodium and Potassium (Na+K)            | 94  |
| Magnesium (Mg)                         | 33  |

Calcium (Ca) .....	64
Iron and Aluminum (Fe+Al) .....	1
Loss on ignition .....	215

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Total dissolved solids ..... 855

M. 1401.—Water from well of N. B. Ivey, Green Cove  
Springs, for State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ ) .....	7
Chlorine (Cl) .....	9
Sulfate radicle ( $\text{SO}_4$ ) .....	7
Phosphate radicle ( $\text{PO}_4$ ) .....	0
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	107
Sodium and Potassium (Na+K) .....	14
Magnesium (Mg) .....	4
Calcium (Ca) .....	16
Iron and Aluminum (Fe+Al) .....	1
Loss on ignition .....	67

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Total dissolved solids ..... 155

M. 1402.—Water from Fleming Well, Hibernia, for  
State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ ) .....	9
Chlorine (Cl) .....	7
Sulfate radicle ( $\text{SO}_4$ ) .....	5
Phosphate radicle ( $\text{PO}_4$ ) .....	0
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	98
Sodium and Potassium (Na+K) .....	23
Magnesium (Mg) .....	5
Calcium (Ca) .....	14
Iron and Aluminum (Fe+Al) .....	1
Loss on ignition .....	45

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Total dissolved solids ..... 122

- M. 1403.—Water from well of Nassau Truck and Farm Company, three miles south of Fernandina, for State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	24
Chlorine (Cl)	30
Sulfate radicle ( $\text{SO}_4$ )	133
Phosphate radicle ( $\text{PO}_4$ )	0
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	195
Sodium and Potassium (Na+K)	30
Magnesium (Mg)	13
Calcium (Ca)	55
Iron and Aluminum (Fe+Al)	1
Loss on ignition	130
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Total dissolved solids	500

- M. 1404.—Water from town well, Callahan, for State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	23
Chlorine (Cl)	121
Sulfate radicle ( $\text{SO}_4$ )	129
Phosphate radicle ( $\text{PO}_4$ )	4
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	276
Sodium and Potassium (Na+K)	111
Magnesium (Mg)	18
Calcium (Ca)	71
Iron and Aluminum (Fe+Al)	1
Loss on ignition	170
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Total dissolved solids	750

M. 1405.—Water from well of S. Henry, City Point, for  
State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	17
Chlorine (Cl)	2,248
Sulfate radicle ( $\text{SO}_4$ )	207
Phosphate radicle ( $\text{PO}_4$ )	8
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	168
Sodium and Potassium (Na+K)	1,174
Magnesium (Mg)	116
Calcium (Ca)	440
Iron and Aluminum (Fe+Al)	1
Loss on ignition	960
Total dissolved solids	5,053

M. 1406.—Water from well of Titusville Ice Company,  
Titusville, for State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	8
Chlorine (Cl)	11,879
Sulfate radicle ( $\text{SO}_4$ )	547
Phosphate radicle ( $\text{PO}_4$ )	0
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	177
Sodium and Potassium (Na+K)	6,542
Magnesium (Mg)	669
Calcium (Ca)	637
Iron and Aluminum (Fe+Al)	3
Loss on ignition	1,380
Total dissolved solids	23,060

M. 1407.—Water from Ollif Well, Sharpes, for State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	16
Chlorine (Cl)	3,120
Sulfate radicle ( $\text{SO}_4$ )	302
Phosphate radicle ( $\text{PO}_4$ )	0
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	165
Sodium and Potassium (Na+K)	1,634
Magnesium (Mg)	286
Calcium (Ca)	262
Iron and Aluminum (Fe+Al)	4
Loss on ignition	974
Total dissolved solids	6,520

M. 1408.—Water from well of H. Bradford, Cocoa, for State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	12
Chlorine (Cl)	1,082
Sulfate radicle ( $\text{SO}_4$ )	201
Phosphate radicle ( $\text{PO}_4$ )	0
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	152
Sodium and Potassium (Na+K)	536
Magnesium (Mg)	77
Calcium (Ca)	167
Iron and Aluminum (Fe+Al)	4
Loss on ignition	470
Total dissolved solids	2,546

M. 1409.—Water from well of L. D. Hancock, Lotus, for  
State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	12
Chlorine (Cl)	642
Sulfate radicle ( $\text{SO}_4$ )	178
Phosphate radicle ( $\text{PO}_4$ )	0
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	149
Sodium and Potassium (Na+K)	309
Magnesium (Mg)	63
Calcium (Ca)	132
Iron and Aluminum (Fe+Al)	3
Loss on ignition	370
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Total dissolved solids	1,710

M. 1410.—Water from well of H. P. Bowden, one mile  
west of Melbourne, for State Geological  
Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	18
Chlorine (Cl)	573
Sulfate radicle ( $\text{SO}_4$ )	150
Phosphate radicle ( $\text{PO}_4$ )	0
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	156
Sodium and Potassium (Na+K)	269
Magnesium (Mg)	68
Calcium (Ca)	123
Iron and Aluminum (Fe+Al)	8
Loss on ignition	375
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Total dissolved solids	1,555

M. 1411.—Water from 8-inch city well, Tallahassee, for  
State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	7
Chlorine (Cl)	7
Sulfate radicle ( $\text{SO}_4$ )	2
Phosphate radicle ( $\text{PO}_4$ )	0
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	143
Sodium and Potassium (Na+K)	31
Magnesium (Mg)	2
Calcium (Ca)	41
Iron and Aluminum (Fe+Al)	8
Loss on ignition	35
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Total dissolved solids	165

M. 1418.—Water from 1212-foot well of C. I. Cragin.  
Palm Beach, for State Geological Survey.

(Milligrams per Liter.)

Silica ( $\text{SiO}_2$ )	17
Chlorine (Cl)	1,337
Sulfate radicle ( $\text{SO}_4$ )	431
Phosphate radicle ( $\text{PO}_4$ )	3
Carbonate radicle ( $\text{CO}_3$ )	0
Bicarbonate radicle ( $\text{HCO}_3$ )	195
Sodium and Potassium (Na+K)	835
Magnesium (Mg)	112
Calcium (Ca)	102
Iron and Aluminum (Fe+Al)	2
Loss on ignition	357
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Total dissolved solids	3,000

M. 1419.—Water from 12-foot rock well of C. I. Cragin,  
Palm Beach, for State Geological Survey.

(Parts per 1,000,000.)

Chlorine (Cl) .....	543
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	329
Loss on ignition .....	223
Total dissolved solids .....	1,630

M. 1420.—Saw Grass water from C. I. Cragin, Palm  
Beach, for State Geological Survey.

(Parts per 1,000,000.)

Chlorine (Cl) .....	712
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	476
Loss on ignition .....	343
Total dissolved solids .....	1,890

M. 1421.—Water from J. L. Bonnell, Jacksonville.

(Parts per 1,000,000.)

Chlorine (Cl) .....	18
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	299
Loss on ignition .....	66
Total dissolved solids .....	404

M. 1422.—Water from Dr. R. F. Altree, Port Tampa.  
"No. 1."

(Parts per 1,000,000.)

Chlorine (Cl) .....	209
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	375
Loss on ignition .....	590
Total dissolved solids .....	830



- M. 1423.—Water from Dr. R. F. Altree, Port Tampa.  
"No. 2."

(Parts per 1,000,000.)

Chlorine (Cl) .....	126
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	351
Loss on ignition .....	183

Total dissolved solids .....1,180

- M. 1424.—Water from Dr. R. F. Altree, Port Tampa.  
"No. 3."

(Parts per 1,000,000.)

Chlorine (Cl) .....	431
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	366
Loss on ignition .....	210

Total dissolved solids .....1,210

- M. 1425.—Water from Dr. R. F. Altree, Port Tampa.  
"No. 4."

(Parts per 1,000,000.)

Chlorine (Cl) .....	239
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	359
Loss on ignition .....	175

Total dissolved solids ..... 885

- M. 1426.—Water from Dr. R. F. Altree, Port Tampa.  
"No. 5."

(Parts per 1,000,000.)

Chlorine (Cl) .....	89
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	378
Loss on ignition .....	118

Total dissolved solids ..... 580

- M. 1427.—Water from Dr. R. F. Altree, Port Tampa.  
"No. 6."

Artesian water from 150-foot flowing well.

(Parts per 1,000,000.)

Chlorine (Cl) .....	284
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	329
Loss on ignition .....	127
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Total dissolved solids .....	840

- M. 1436.—Water from P. S. McClung, Florala, Ala.

Artesian water from 357-foot well.

(Parts per 1,000,000.)

Chlorine (Cl) .....	4
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	159
Loss on ignition .....	16
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Total dissolved solids .....	153

- M. 1437.—Water from T. R. Hodges, Tallahassee.

Water from Newport Spring, Wakulla County.

(Parts per 1,000,000.)

Chlorine (Cl) .....	14
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	217
Loss on ignition .....	46
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Total dissolved solids .....	293

- M. 1438.—Water from Henry S. Pennock, Jupiter.

"No. 1."

Chlorine (parts per 1,000,000) .....	26
Chlorine calculated to Sodium Chloride (parts per 1,000,000) .....	43

- M. 1439.—Water from Henry S. Pennock, Jupiter.  
 "No. 2."  
 Chlorine (parts per 1,000,000) ..... 17  
 Chlorine calculated to Sodium Chloride  
 (parts per 1,000,000) ..... 28
- M. 1440.—Water from Henry S. Pennock, Jupiter.  
 "No. 3."  
 Chlorine (parts per 1,000,000) ..... 7  
 Chlorine calculated to Sodium Chloride  
 (parts per 1,000,000) ..... 12
- M. 1441.—Water from Henry S. Pennock, Jupiter.  
 "No. 4."  
 Chlorine (parts per 1,000,000) ..... 42  
 Chlorine calculated to Sodium Chloride  
 (parts per 1,000,000) ..... 70
- M. 1454.—Water from Warnell Lumber and Veneer  
 Company, Plant City.  
 Water from 267-foot well.  
 (Parts per 1,000,000.)  
 Chlorine (Cl) ..... 7  
 Carbonate radicle ( $\text{CO}_3$ ) ..... 0  
 Bicarbonate radicle ( $\text{HCO}_3$ ) ..... 137  
 Loss on ignition ..... 35  


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 Total dissolved solids ..... 190
- M. 1455.—Water from J. W. Cobb, Perry.  
 Artesian water from 1199-foot flowing well.  
 (Parts per 1,000,000.)  
 Chlorine (Cl) ..... 596  
 Carbonate radicle ( $\text{CO}_3$ ) ..... 0  
 Bicarbonate radicle ( $\text{HCO}_3$ ) ..... 156  
 Loss on ignition ..... 770  


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 Total dissolved solids ..... 5,650

- M. 1456.—Water from S. O. Johnson, Key West, for  
State Geological Survey.

Chlorine (parts per 1,000,000) .....	1,018
Chlorine calculated to Sodium Chloride (parts per 1,000,000) .....	1,655

- M. 1461.—Water from Zolfo Mercantile Company, Zolfo.  
Spring water.

(Parts per 1,000,000.)

Chlorine (Cl) .....	18
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	183
Loss on ignition .....	55

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Total dissolved solids .....

500

- M. 1462.—Water from C. W. Sinclair, Madison.  
Water from 82-foot well at Hopewell, Madi-  
son County.

(Parts per 1,000,000.)

Chlorine (Cl) .....	14
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	229
Loss on ignition .....	80

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Total dissolved solids .....

270

- M. 1463.—Water from J. R. Jennings, Jennings.  
Water from town supply from 280-foot well.

(Parts per 1,000,000.)

Chlorine (Cl) .....	7
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	162
Loss on ignition .....	35

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Total dissolved solids .....

180

M. 1468.—Water from near top of well of S. O. Johnson,  
Key West, for State Geological Survey.  
Chlorine (parts per 1,000,000) .....1,418  
Chlorine calculated to Sodium Chloride  
(parts per 1,000,000) .....2,340

M. 1469.—Water from near bottom of well of S. O. Johnson,  
Key West, for State Geological Survey.  
Chlorine (parts per 1,000,000) ..... 823  
Chlorine calculated to Sodium Chloride  
(parts per 1,000,000) .....1,358

M. 1470.—Water from C. W. Sinclair, Madison.  
Water from 82-foot well at Hopewell, Madison County.  
(Parts per 1,000,000.)  
Chlorine (Cl) ..... 10  
Carbonate radicle ( $\text{CO}_3$ ) ..... 0  
Bicarbonate radicle ( $\text{HCO}_3$ ) ..... 220  
Loss on ignition ..... 75  
Total dissolved solids ..... 256

M. 1474.—Water from H. B. Caskin, Blountstown.  
Well water.  
(Parts per 1,000,000.)  
Chlorine (Cl) ..... 7  
Carbonate radicle ( $\text{CO}_3$ ) ..... 0  
Bicarbonate radicle ( $\text{HCO}_3$ ) ..... 183  
Loss on ignition ..... 44  
Total dissolved solids ..... 200

M. 1477.—Water from William Edwards, Zellwood.  
(Parts per 1,000,000.)  
Chlorine (Cl) ..... 7  
Carbonate radicle ( $\text{CO}_3$ ) ..... 0  
Bicarbonate radicle ( $\text{HCO}_3$ ) ..... 7  
Loss on ignition ..... 40  
Total dissolved solids ..... 75

M. 1480.—Water from Ernest H. Every, Sebastian.	
Artesian water from 370-foot flowing well.	
(Parts per 1,000,000.)	
Chlorine (Cl) .....	257
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	177
Loss on ignition .....	245
Total dissolved solids .....	905
M. 1481.—Water from George M. Robbins, Titusville.	
Water from city well of Titusville.	
(Parts per 1,000,000.)	
Chlorine (Cl) .....	57
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	360
Loss on ignition .....	152
Total dissolved solids .....	448
M. 1485.—Water from Nathaniel Brewer, Jr., Newport.	
Water from Newport Spring, Wakulla County.	
(Parts per 1,000,000.)	
Chlorine (Cl) .....	18
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	216
Loss on ignition .....	70
Total dissolved solids .....	342
M. 1486.—Water from H. A. Engman, Clearwater.	
Water from 263-foot well.	
(Parts per 1,000,000.)	
Chlorine (Cl) .....	44
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	186
Loss on ignition .....	50
Total dissolved solids .....	275

M. 1490.—Water from H. Gunter, Tallahassee.	
Distilled water.	
Total dissolved solids (parts per 1- 000,000) .....	30
M. 1491.—Water from A. M. Henry, Tallahassee.	
Distilled water.	
Total dissolved solids (parts per 1- 000,000) .....	10
M. 1496.—Water from S. S. Alderman, Wewahitchka.	
(Parts per 1,000,000.)	
Chlorine (Cl) .....	7
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	117
Loss on ignition .....	55
Total dissolved solids .....	130
M. 1502.—Water from W. N. Strickland, Ben Haden.	
(Parts per 1,000,000.)	
Chlorine (Cl) .....	14
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	175
Loss on ignition .....	40
Total dissolved solids .....	200
M. 1510.—Water from A. D. Carmichael, Chipley.	
Water from city well of Chipley.	
(Parts per 1,000,000.)	
Chlorine (Cl) .....	4
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	122
Loss on ignition .....	40
Total dissolved solids .....	136

- M. 1511.—Water from E. M. Pridgeon, Wewahitchka.  
Spring water.

(Parts per 1,000,000.)

Chlorine (Cl) .....	9
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	92
Loss on ignition .....	20
Total dissolved solids .....	105

- M. 1512.—Water from Miss Clem Hampton, Tallahassee  
Water from well at Perry.

(Parts per 1,000,000.)

Chlorine (Cl) .....	14
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	259
Loss on ignition .....	52
Total dissolved solids .....	257

- M. 1513.—Water from Miss Clem Hampton, Tallahassee  
Water from Perry Creek at Perry.

(Parts per 1,000,000.)

Chlorine (Cl) .....	7
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	149
Loss on ignition .....	63
Total dissolved solids .....	157

- M. 1516.—Water from W. A. Whitcomb, Bloomington,  
Ill.

Water from flowing well near Geneva, Orange  
County.

(Parts per 1,000,000.)

Chlorine (Cl) .....	3,617
Carbonate radicle ( $\text{CO}_3$ ) .....	0
Bicarbonate radicle ( $\text{HCO}_3$ ) .....	229
Loss on ignition .....	2,135
Total dissolved solids .....	8,611



## MISCELLANEOUS SAMPLES.

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- M. 1346.—Iron Pyrites (Iron Sulfide), from J. W. Kimbrough, Webster.
- M. 1347.—Iron Pyrites (Iron Sulfide), from J. A. Eaddy, Bushnell.
- M. 1348.—Limestone (Calcium Carbonate), from L. A. Minx & Co., Kissimmee.  
The sample contains no phosphates.
- M. 1349.—Limestone (Calcium Carbonate), from L. A. Minx & Co., Kissimmee.  
This sample contains no phosphates.
- M. 1350.—Impure Fullers Earth, from J. W. Register, Jasper.
- M. 1353.—Soil from W. L. VanDuzor, Kissimmee.
- M. 1354.—Rock specimens from A. Smith, Webster.  
Limestone (Calcium Carbonate), "No. 1." /  
Clay, "No. 2."
- M. 1355.—Iron Pyrites (Iron Sulfide), from Dinkins & Branch, Bushnell.
- M. 1356.—Muck Soil, from George B. Perkins, Tallahassee.  
Ammonia on air dry sample (%)..... 0.88
- M. 1357.—Muck, from R. S. Cheatham, Bartow.  
Ammonia on air dry sample (%)..... 0.06
- M. 1358.—Blue Clay, from Lake Jackson Tobacco Company, Tallahassee. "No. 1."

- M. 1359.—Impure Fullers Earth, from Lake Jackson Tobacco Company, Tallahassee. "No. 2."
- M. 1360.—Muck, from F. H. Chesbro, Boca Ratone.  
Moisture in sample as received (%)... 69.57  
Ammonia in air dry sample (%)..... 2.55
- M. 1361.—Muck, from R. Griffin Johnson, Tallahassee.  
Sample taken from Lake Munson, Leon County.  
Ammonia in air dry sample (%)..... 2.31
- M. 1363.—Treated Sawdust, from George A. Carroll, Jacksonville.
- M. 1364.—Clay, containing Limonite Pebbles, from J. S. Holland, Midway.
- M. 1365.—Urine, from Dr. E. E. Philbrick, Tallahassee.  
Specific gravity at 20°C .....1.0252
- M. 1367.—Phosphatic Limestone, from Dinkins & Branch, Bushnell.
- M. 1371.—Limestone (Calcium Carbonate), from J. W. Carraway, LaBelle.
- M. 1372.—Impure Limonite (Bog Iron Ore), from H. L. Hopkins, Holland.
- M. 1373.—Impure Gypsum (Calcium Sulfate), from E. Walker, Inverness.
- M. 1374.—Pulverized Limestone (Calcium Carbonate), from G. L. Campbell, Carrabelle.
- M. 1375.—Limestone Pebbles (Calcium Carbonate), from Z. C. West, Orange Dale.

- M. 1376.—A black emulsion from Dr. J. C. L'Engle, Jacksonville.  
Water, containing a sediment of iron oxide colored with carbonaceous matter.
- M. 1377.—Iron Pyrites (Iron Sulfide), from A. J. Johnson, Reddick.
- M. 1378.—Blue Clay, from Julius Diamond, Tallahassee.
- M. 1379.—Turubull Hammock Soil, from Walter Walden, Miami.  
Moisture (%) ..... 36.12  
Combustible matter (%) ..... 13.87  
Ash (%) ..... 52.12  
Ammonia (%) ..... 0.43
- M. 1380.—Urine, from Dr. E. E. Philbrick, Tallahassee.  
Specific gravity at 20°C ..... 0.0141
- M. 1381.—Phosphate sample from Bartow, for State Geological Survey.  
Phosphoric Acid (%) ..... 15.56  
Equivalent to Bone Phosphate of Lime (per cent.) ..... 33.97
- M. 1382.—Ground Phosphate Rock, from C. C. Liddon, Marianna.  
Phosphoric Acid (%) ..... 28.75  
Equivalent to Bone Phosphate of Lime (per cent.) ..... 62.76
- M. 1391.—Hard Rock Phosphate Pebbles in Sandy Matrix, from Dutton, for State Geological Survey.  
Phosphoric Acid (%) ..... 5.38  
Equivalent to Bone Phosphate of Lime (per cent.) ..... 11.75

- M. 1392.—Limestone (Calcium Carbonate), from W. W. Cleveland, Jacksonville.
- M. 1393.—Muck, from Peter Pierson, Pierson.  
 Moisture (%) ..... 53.35  
 Ammonia (%) ..... 0.80  
 Ash (%) ..... 13.88
- M. 1394.—Iron Pyrites (Iron Sulfide), from C. R. Jenkins, Sueads.
- M. 1395.—Silca Concretion, from S. E. Key, Quincy.
- M. 1396.—Iron Pyrites (Iron Sulfide), from S. I. Revel, Bristol.
- M. 1412.—Soft Limestone (Calcium Carbonate), from P. A. McMillan, Eau Gallie.
- M. 1413.—Impure Fullers Earth, from Wayne Thomas, Bartow.
- M. 1414.—Fine Sand, from Mrs. J. A. Caruthers, Crescent Beach.
- M. 1415.—Soft Limestone (Calcium Carbonate), from George F. Gaines, Victoria.
- M. 1416.—Kaolin, from John F. Carleton, Sparr.
- M. 1417.—Powder, used for tempering steel, from H. L. Wise, Jasper.  
 A mixture of Sodium Chloride, Sodium Bicarbonate and Sodium Carbonate.
- M. 1428.—Muck, from J. D. Robertson, Ocala. "No. 1."  
 Moisture in sample as received (%).. 78.51  
 Ammonia on moisture free basis (%).. 2.97  
 Ash on moisture free basis (%)..... 8.32

- M. 1429.—Muck, from J. D. Robertson, Ocala. "No. 2."  
 Moisture in sample as received (%).. 62.40  
 Ammonia on moisture free basis (%).. 3.25  
 Ash on moisture free basis (%)..... 7.97
- M. 1430.—Muck, from J. Bittenbach & Co., Holder.  
 Moisture in sample as received (%).. 77.25  
 Ammonia on moisture free basis (%).. 3.08  
 Ash on moisture free basis (%)..... 8.10
- M. 1431.—Impure Limestone (Calcium Carbonate),  
 from T. K. Godbey, Waldo.
- M. 1432.—Muck, from Gulf Fertilizer Company, Tampa.  
 Ash (%) ..... 18.68  
 Insoluble matter (%) ..... 9.35  
 Ammonia (%) ..... 2.78
- M. 1433.—Soft Phosphate, from J. Schnarr, Orlando.  
 "N. 1."  
 Phosphoric Acid (%) ..... 3.61
- M. 1434.—Soft Phosphate, from J. Schnarr, Orlando.  
 "No. 2."  
 Phosphoric Acid (%) ..... 3.67
- M. 1435.—Sandy Clay, from H. B. Wordehoff, Plant  
 City.
- M. 1442.—Hardpan from Beach near Apalachicola, for  
 State Geological Survey.  
 (Analysis on Air Dry Basis.)  
 Moisture (%) ..... 1.10  
 Combustible matter (%) ..... 3.29  
 Silica (%) ..... 64.57  
 Undetermined (%) ..... 1.04

- M. 1443.—Algae, from Sulfur Water, for State Geological Survey.  
Sample contains sulfur and sulfates.
- M. 1444.—A mineral powder for State Geological Survey.  
A mixture of Calcium Sulfate, Calcium Carbonate and Silica.
- M. 1445.—Muck, from Ernest H. Every, Sebastian.
- |                       |       |
|-----------------------|-------|
| Phosphoric Acid (%)   | 0.18  |
| Ammonia (%)           | 4.12  |
| Potash ( $K_2O$ ) (%) | 0.065 |
| Ash (%)               | 4.14  |
- M. 1446.—Marl (Calcium Carbonate), from New South Farm Company, Ocala.
- M. 1447.—Soft Limestone (Calcium Carbonate), from J. T. Birwick, Palmetto.
- M. 1448.—Fresh Muck, from J. L. Nesbit, Savannah, Ga.
- |                                    |       |
|------------------------------------|-------|
| Moisture in sample as received (%) | 94.96 |
| Ammonia on moisture free basis (%) | 2.03  |
- M. 1449.—Soil, from R. Kilpatrick, Miami.
- |  |       |
|--|-------|
| Moisture in sample as received (%)                   | 58.29 |
| Calcium Carbonate on moisture free basis (%)         | 71.43 |
| Ash on moisture free basis (%)                       | 46.90 |
| Ammonia on moisture free basis (%)                   | 1.26  |
| Phosphoric Acid on moisture free basis (per cent.)   | 0.115 |
| Potash ( $K_2O$ ) on moisture free basis (per cent.) | 0.105 |
- M. 1450.—Soft Limestone (Calcium Carbonate), colored with Iron, from Jimmie Stephens, Lebanon.

M. 1451.—Black Clay, from A. Clark, River Junction.

M. 1452.—Soil, from Ernest H. Every, Sebastian.  
"No. 1."

Moisture in sample as received (%)	31.64
Ash on moisture free basis (%)	90.80
Ammonia on moisture free basis (%)	0.32
Phosphoric Acid on moisture free basis (per cent.)	0.042
Potash ( $K_2O$ ) on moisture free basis (per cent.)	0.035

M. 1453.—Soil, from Ernest H. Every, Sebastian.  
"No. 2."

Moisture in sample as received (%)	79.92
Ash on moisture free basis (%)	60.41
Ammonia on moisture free basis (%)	1.13
Phosphoric Acid on moisture free basis (per cent.)	0.066
Potash ( $K_2O$ ) on moisture free basis (per cent.)	0.060

M. 1457.—Soil, from Ernest H. Every, Sebastian.  
"No. 3."

Ash (%)	94.34
Phosphoric Acid	Trace.
Potash ( $K_2O$ )	0.045

M. 1458.—Soil, from Ernest H. Every, Sebastian.  
"No. 4."

Ash (%)	99.02
Ammonia (%)	0.017
Phosphoric Acid (%)	Trace.
Potash ( $K_2O$ )	0.076

M. 1459.—Impure Limestone (Calcium Carbonate),  
from R. D. Waring, Kissimmee.

- M. 1460.—Mica schist, from W. H. Crugler, Jacksonville.
- M. 1464.—Pond Muck, from Henry W. Smith, Wachula.  
 Ammonia on moisture free basis (%) . 3.24  
 Ash on moisture free basis (%) . . . . . 16.60  
 Insoluble matter on moisture free basis  
 (per cent.) . . . . . 14.83
- M. 1465.—Brown Muck, from Ernest H. Every, Sebastian. "No. 6."  
 Ash on moisture free basis (%) . . . . . 62.43  
 Ammonia on moisture free basis (%) . 1.24
- M. 1466.—Impure Kaolin, from J. B. Smith, Lakeland.
- M. 1467.—Mica, from King & Bro., Harris.
- M. 1471.—Limestone (Calcium Carbonate), from W. C. Warrington & Co., Jacksonville.
- M. 1472.—Silicious Rock, from C. A. Edgerton, Quincy.
- M. 1473.—Marl (Calcium Carbonate), from C. W. Kibler, Largo.
- M. 1475.—Kaolin, from M. C. Lewis, Harper.
- M. 1476.—Impure Fullers Earth, from T. W. Karstedt, Lake City.
- M. 1478.—Burnt Clay, from D. B. Kent, Miami.
- M. 1479.—Sandy Marl (Calcium Carbonate and Silica), from Hunter Land Company, Kissimmee.
- M. 1482.—Muck, from Joe Cameron, Sanford.  
 Ash (%) . . . . . 34.24  
 Ammonia (%) . . . . . 2.59  
 Phosphoric Acid (%) . . . . . 0.17  
 Potash ( $K_2O$ ) (%) . . . . . 0.205



- M. 1483.—Conglomerate (clay) containing quartz pebbles, iron oxide and mica, from James Roberts, Grand Ridge.
- M. 1484.—Sandy Kaolin, from W. A. D'Alemberte, Pensacola.
- M. 1487.—Limestone, from G. A. Danley, Chipley.
- |                                     |       |
|-------------------------------------|-------|
| Insoluble matter (%)                | 4.23  |
| Lime (CaO) (%)                      | 54.10 |
| Equivalent to Calcium Carbonate (%) | 96.52 |
- M. 1488.—Carbonaceous Shale, from S. M. Miller, Graceville.
- M. 1489.—Rotten Limestone (Calcium Carbonate), from Thomas Brown, Largo.
- M. 1492.—Rock Phosphate, from Charles Jensen, Lacoochee. "No. 1."
- |  |       |
|--|-------|
| Phosphoric Acid (%)                              | 35.15 |
| Equivalent to Bone Phosphate of Lime (per cent.) | 76.73 |
- M. 1493.—Rock Phosphate, from Charles Jensen, Lacoochee. "No. 2."
- |  |       |
|--|-------|
| Phosphoric Acid (%)                              | 12.09 |
| Equivalent to Bone Phosphate of Lime (per cent.) | 26.39 |
- M. 1494.—Rock Phosphate, from Charles Jensen, Lacoochee. "No. 3."
- |  |       |
|--|-------|
| Phosphoric Acid (%)                              | 35.17 |
| Equivalent to Bone Phosphate of Lime (per cent.) | 76.78 |

M. 1495.—Rock Phosphate, from Charles Jensen, Lacoochee. "No. 4."

Phosphoric Acid (%) ..... 35.28

Equivalent to Bone Phosphate of Lime  
(per cent.) ..... 77.02

M. 1487.—Sandy Clay, from Geo. T. Gaines, Victoria.

M. 1498.—Soil, from B. K. Buck, Maxville. "No. 10."

Ash on air dry basis (%) ..... 96.70

Ammonia on air dry basis (%) ..... 0.40

M. 1499.—Soil, from B. K. Buck, Maxville. "No. 15."

Ash on air dry basis (%) ..... 94.21

Ammonia on air dry basis (%) ..... 0.25

M. 1500.—Soil, from B. K. Buck, Maxville. "No. 16."

Ash on air dry basis (%) ..... 95.76

Ammonia on air dry basis (%) ..... 0.20

M. 1501.—Soil, from B. K. Buck, Maxville. "No. 13."

Ash on air dry basis (%) ..... 93.03

Ammonia on air dry basis (%) ..... 0.25

M. 1503.—Marl (Calcium Carbonate), from Bowen Sheppard, Bristol.

M. 1504.—Marl (Calcium Carbonate), from Pike Adair, Lakeland.

M. 1505.—Rock Phosphate, from William Child, Tallahassee. "No. 1."

Phosphoric Acid (%) ..... 29.74

Equivalent to Bone Phosphate of Lime  
(per cent.) ..... 64.91

- M. 1506.—Rock Phosphate, from William Child, Tallahassee. "No. 2."
- |   |       |
|---|-------|
| Phosphoric Acid (%) .....                                 | 24.89 |
| Equivalent to Bone Phosphate of Lime<br>(per cent.) ..... | 54.34 |
- M. 1507.—Iron Pyrites (Iron Sulfide), from Zephyrhill Colony Co., Zephyrhills, Pasco County.
- M. 1508.—Muck, from J. J. Head, Tampa.
- M. 1509.—Marl (Calcium Carbonate), from R. C. May, Miami.
- M. 1514.—Boiler Compound, from Miss Clem Hampton, Tallahassee.  
A Mixture of Sodium Phosphate, Sodium Sulfate and Sodium Hydrate.
- M. 1515.—Powder, from A. P. McCaskill, Tallahassee.  
The powder is arsenious acid, colored.
- M. 1517.—Shell Marl (Calcium Carbonate and Silica), from F. Alesh, Omega.